State of North Carolina Department of Health and Human Services
Division of Medical Assistance and Office of MMIS Services

North Carolina Medicaid
Health Information Technology Plan

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January 2012	Executive Summary	9-11	Revised with updated information
January 2012	A.1-A.5.9	12-34	Revised with updated information
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January 2012	Appendix 2	130	New section
January 2012	Appendix 5	145-152	New acronyms added
January 2012	Acronyms	145-152	Moved to Appendix 5
January 2012	Previous Version Control	153-160	Previous Version Control moved to Appendix 6

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NC MEDICAID HEALTH INFORMATION TECHNOLOGY PLAN OVERVIEW

Executive Summary

This North Carolina (NC) Medicaid Health Information Technology (HIT) Plan (the Plan) outlines the NC Department of Health and Human Services (NCDHHS), Division of Medical Assistance (DMA) strategy through 2015 for implementing the Medicaid Electronic Health Record (EHR) Incentive Program authorized under Section 4201 of the American Reinvestment and Recovery Act of 2009 (ARRA).

North Carolina recognizes the opportunities provided by the EHR Incentive Program (the Program) for improved care coordination and reduction of waste in the healthcare system. The sections of this Plan include a description of the current state of HIT in North Carolina, its five-year HIT vision, approach to administering the EHR Incentive Program, audit strategy, and HIT roadmap. This document provides the framework for a common understanding of the goals of the NC Medicaid HIT Unit. This is a dynamic document which will be updated no less than annually as NC continues to track and plan for acceleration of meaningful use of certified electronic health record technology (CEHRT).

Section A details the various HIT initiatives that are in progress across the State, and reports on the results of various surveys of the provider population and technologies.

Section B outlines the vision and architecture of the goal state in alignment with the NC Health Information Exchange (HIE) Operational Plan and the expansion of North Carolina Community Care Networks' (N3CN) Informatics Center to support meaningful use of CEHRT, improve the quality of patient care, and coordinate care management of Medicaid patients. This section also details the specific goals of the EHR Incentive Program and the Program's relationship to Medicaid's larger technical infrastructure and state law.

Section C describes North Carolina's plans for administration and oversight of the EHR Incentive Program. The Department made an early and significant investment in this Program, distributing the first incentive payments to providers in March 2011. Nearly fully staffed in January 2012, DMA and the Office of MMIS Services (OMMISS) look forward to accelerating meaningful use of CEHRT across the state in 2012 through an enhanced NC Medicaid Incentive Payment System (NC-MIPS) and a robust penetration analysis and outreach campaign.

Section D details the State's audit strategy for the EHR Incentive Program, which is targeted at ensuring that North Carolina is a responsible steward of Medicaid funds and that appropriate incentive payments are made to professionals and hospitals who meet all eligibility criteria. The State will prevent and identify suspected fraud and abuse through data analysis, pre-payment monitoring, and targeted post-payment auditing. NC will update this audit strategy to include a greater level of detail in the spring of 2012.

Finally, Section E addresses the State HIT Roadmap and reflects the commitment of North Carolina to encourage widespread meaningful use of CEHRT. North Carolina understands that this journey will require persistence, ongoing analysis of adoption patterns, and regular adjustment of outreach efforts to be successful.

North Carolina will remain focused on the tasks and goals herein to contribute to a more efficient, more effective healthcare system and a healthier population. This Plan represents one very important component of how the Department will achieve its mission to "protect the health and safety of all North Carolinians and provide essential human services."

Role of Medicaid in State HIT and HIE Coordination

In response to the opportunities and requirements for developing and overseeing the Medicaid EHR Incentive program, North Carolina Medicaid has adopted a multi-level planning strategy that simultaneously addresses: (1) the internal needs of DMA; (2) coordination across North Carolina state government agencies; and (3) cooperation with public-private efforts. This organizational structure is graphically depicted below in **Figure 1**.

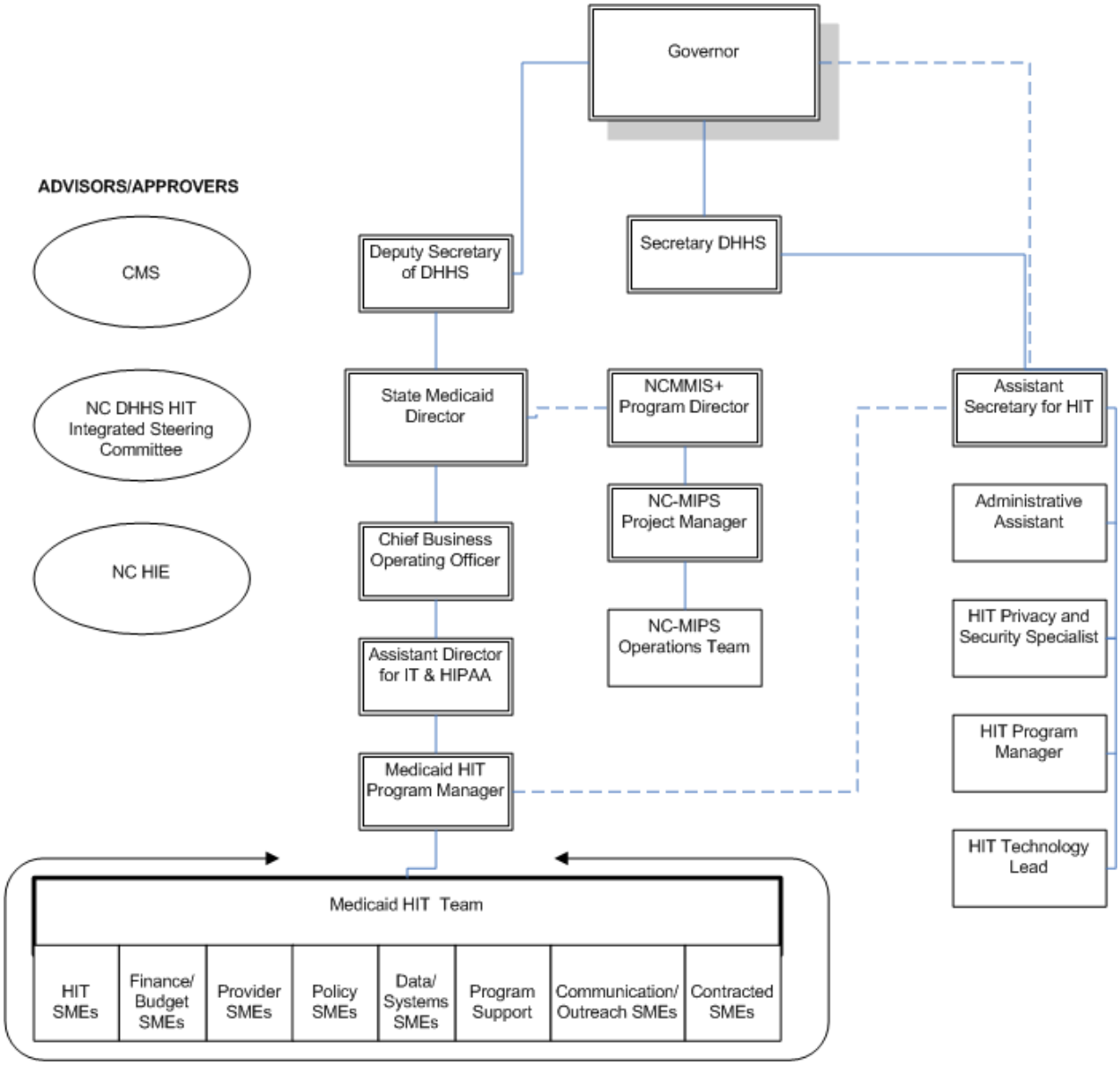

Figure 1- North Carolina HIT and HIE Organizational Structure

DMA Medicaid Information Technology Architecture (MITA) and HIT Coordination Activities

The Office of MMIS Services (OMMISS) oversees the Replacement MMIS activities as well as the MITA SS-A. DHHS is coordinating its HIT Plan efforts with the Medicaid Information Technology Architecture (MITA) transition plans for the Replacement MMIS. DHHS recognizes that there is a synergistic connection between the HIT Plan and the MITA "To Be" assessment, which considers the State's goals for HIT in the future vision for the Medicaid and Behavioral Health Enterprises.

DMA's all-encompassing vision for the future of the North Carolina Medicaid enterprise focuses on two key goals, each of which drove DMA's vision items and the "To Be" assessment of the MITA and State-specific business processes:

1. North Carolina will become a health policy leader
2. The Medicaid enterprise will use the power of the Medicaid Program to improve the standard of care across the State

The "To Be" assessment indicates a solid progression through the MITA Capability Maturity Levels over the next 5 and 10+ years, resulting in primarily Level 3 or better ratings within the 5-year timeframe and Level 5 ratings for the majority of the business processes within the 10+ year timeframe.

NC DHHS, in collaboration with the selected vendor, CSC, is currently in the design, development, and testing phases of the Replacement MMIS and a Reporting and Analytics solution which includes a data warehouse, decision support system, business intelligence, and fraud and abuse detection functionality. A challenge for HIT is the inherent risk of making modifications to the Replacement MMIS design prior to MMIS go-live and federal certification.

Currently, the NC Medicaid Incentive Payment System (NC-MIPS) is a stand-alone system that obtains all of the required information from eligible providers; contains the necessary interfaces to Centers for Medicaid and Medicare Services (CMS), the Office of the National Coordinator (ONC) for Health IT's Certified Health IT Product List, and NC Medicaid's Enrollment, Verification, and Credentialing (EVC) system; and generates a financial file for the current MMIS fiscal agent, Hewlett Packard Enterprise System (HPES), for use in issuing the incentive payments to providers. In 2013, NC-MIPS will be integrated into the Replacement MMIS. OMMISS is researching potential modifications to the provider and financial business areas of the Replacement MMIS to support NC-MIPS and store provider eligibility and incentive payment history, thereby optimizing complimentary capabilities.

Interagency Coordination

Per the *Session Law (SL) 2009-0451* of the NC General Assembly, the NC DHHS, in cooperation with the State Chief Information Officer and the NC Office of Economic Recovery and Investment, coordinates HIT policies and programs within the State. The Department's goal is to avoid duplication of efforts and to ensure that each entity undertaking HIT activities, leverage its greatest expertise and technical capabilities in a manner that supports State and national goals.

This law also directs that NC DHHS shall establish and direct a HIT management structure that is efficient and transparent and that is compatible with the ONC governance mechanism. NC DHHS was further directed to provide quarterly written reports on the status of HIT efforts to the Senate Appropriations Committee on Health and Human Services, the House of Representatives Appropriations Subcommittee on Health and Human Services, and the Fiscal Research Division. In compliance with the law, NC DHHS established the *Office of the State HIT Coordinator*, led by Dr. Steve Cline.

North Carolina has convened the state's healthcare leaders and HIT and HIE stakeholder community through multiple forums during the past few years. Those efforts resulted in the decision to establish the North Carolina Health Information Exchange (NC HIE), a public-private partnership to govern statewide HIE services in North Carolina. NC Medicaid also collaborates with North Carolina's Regional Extension Center (REC) to promote the acceleration of adoption and meaningful use of CEHRT at the practice level.

A NORTH CAROLINA'S "AS-IS" HIT LANDSCAPE

A.1 EHR ADOPTION BY PRACTITIONERS AND HOSPITALS

To determine the status of North Carolina's "as-is" HIT landscape at the beginning of NC DMA initiatives in 2010, DMA developed and participated in two surveys of NC Medicaid providers. One pertained specifically to EHR usage (see *Section A.1.1 EHR Survey)* and the second pertained to broadband availability *(*see *Section A.2 Broadband Survey)*. The estimate for provider participation in the NC Medicaid Incentive Program is included in *Section A.1.2: Estimates of Eligible Professionals Who May Meet Medicaid Volumes for the EHR Incentive Program.* No follow-up surveys on EHR adoption were conducted in 2011.

A.1.1 EHR Surveys

During 2011, the CCNC network of primary care practices were surveyed and 60.5 percent of the 1337 practices indicated they were using or were expecting to implement an EHR by December 2011.

In 2010, North Carolina was engaged in the re-credentialing and enrollment of Medicaid providers using a new enrollment process and application. As part of this process, DMA requested that Medicaid providers complete a survey pertaining to their current and planned EHR use. The following is a summary of the surveys compiled, current as of September 1, 2010.

The North Carolina EHR survey includes the following sections:

1. The current use of an EHR/EMR, product name, and year purchased
2. The integration of an EHR with any applicable hospital systems
3. Certification standards
4. Providers' future plans for purchasing an EHR
5. Barriers to EHR adoption
6. Incentives that could impact EHR adoption
7. Electronic prescribing
8. Provider participation in Medicare

Responses to this survey have been divided into two sections: hospitals and eligible professionals.

See *Appendix 1: EHR Survey Sample.*

A.1.1.1 EHR Survey - Hospitals

As of August 2010, the responses of 125 hospitals were aggregated. Of these, 86 percent (107) were general hospitals. There were also two specialty and 16 critical access hospitals. Most hospitals were in the "fewer than 100 beds" category (44 percent) and 25 percent were in the 100-200 beds range. Hospitals in the 475-bed and upwards range represented 12 of the total respondents.

There was a 95 percent response rate to the question: *Are you currently using an EHR/EMR?* Ten percent did not know; 21 percent are not using EHR/EMR; 49 percent use part paper, part electronic; and 15 percent use all electronic. In total, 15 different products were identified by EHR users. Of these 15 products, the following had the highest percentage of use (note, some amalgamation of responses was made due to very similar but not identical responses): 26 percent had Meditech, 16 percent had Cerner, and 11 percent had Epic. EHRs were purchased between 1980 and 2009, with the majority of the systems being purchased in 2005 and later. Forty-four percent stated that the system met certification standards. In a related question to those who did not have an EHR, 21 percent indicated they would purchase one in the next six to 12 months.

In response to the question, *Is the EHR integrated with the hospital systems admission system*?, 58 percent said yes, 19 percent indicated they did not know or said no, and 22 percent did not respond. This

may indicate that the respondents may not be familiar with the differences between an EHR system and what are called ADT (admission, discharge and transfer) systems. ADT systems are ubiquitous in the industry, so it is unclear why there were a high number of "no" or "do not know" responses.

North Carolina also asked hospitals, *What are your greatest barriers to EHR adoption?* **Table 1** below lists 11 potential barriers presented and the response percentage indicating whether the respondent thought the potential barrier was of major or minor significance. The "no response" rate for the following questions ranged from 22-27 percent.

Table 1 - Potential Barriers to EHR Adoption

Potential Barriers to EHR Adoption	Major	Minor
The amount of capital needed	59 %	8 %
Uncertainty about return on investment	22 %	39 %
Resistance to adoption by physicians	33 %	27 %
Capacity to select, install and implement an EHR	28 %	27 %
Concern about loss of productivity during transition	22 %	38 %
Concerns about inappropriate disclosure of patient data	19 %	42 %
Concerns about illegal record tampering or hacking	16 %	44 %
Concerns about legality of hospital donated EHRs	7 %	27 %
Concerns about legal liability if patients have more access to their information	8 %	44 %
Finding an EHR that meets provider's needs	38 %	14 %
Concerns that the system will be obsolete	19 %	31 %

The survey also specified five conditions and inquired about the effect of each condition in incentivizing hospitals to adopt an EHR. The "no response" rate for each question ranged from 17-20 percent. **Table 2** below lists each condition and the response percentage indicating its impact as major or minor on the choice to adopt an EHR.

Table 2 - Conditions Incentivizing EHR Adoption

Conditions Incentivizing EHR Adoption	Major	Minor
Changing the law to protect providers from personal liability for record tampering by external parties via privacy or security breaches	31 %	42%
Concerns about legal liability by NOT using the latest technology	30 %	42 %
Published certification standards that indicate whether an EHR has the necessary capabilities and functions	37 %	26 %
Incentive for the purchase of an EHR	59 %	13 %
Additional payment for the use of an EHR	65 %	7 %

Clearly, the use of incentives for the purchase and use of an EHR is highly influential on the hospital provider community.

The final series of survey questions is related to electronic prescribing. The response to the question, *Are you using electronic prescribing*?, was answered by all 125 survey respondents with 83 percent stating they were not. Eleven percent of the respondents did not respond. Since the respondents were hospitals, these results are not surprising since electronic prescribing is more often practiced in the ambulatory setting, wherein the individual provider communicates a prescription electronically to the retail pharmacist who fills the prescription.

Of the 6 percent of respondents indicating that they did use electronic prescribing, 9 percent used a computer rather than a handheld device to send the prescription. One question attempted to identify vendors used. Of only 13 respondents, eight used Cerner, three used E-Script, and Allscripts ePrescribe and "CPSI within hospital" had one user each.

A.1.1.2 EHR Survey - Eligible Professionals

As of September 1, 2010, a total of 1,360 individual provider (non-institutional) responses were aggregated. Of these respondents, 87 percent were individual physicians, 1 percent nurse practitioners, and 12 percent individual dentists. Thirty-three provider specialties responded; the majority included: 15 percent General/Family Practice, 11 percent Internal Medicine, 22 percent Pediatrics, 13 percent Radiology/Nuclear Medicine, and 10 percent General Dentistry.

The provider responses to the 27 questions are very useful with only two questions having a greater than 20 percent "no response" rate and 17 questions having a 15 percent-20 percent "no response" rate. The following is a summary of the survey results:

- 68 percent stated that they also saw Medicare patients, 24 percent did not see Medicare patients, and 8 percent did not respond.
- There was a 93 percent response rate to the question: *Are you currently using an EHR/EMR?* Two percent did not know, 42 percent were not using EHR/EMR, 19 percent used part paper and part electronic, and 29 percent used all electronic.
- In total, 141 different products were identified by EHR users. Of these 141 products, the following had the highest percentage of use (note, some amalgamation of responses was made due to very similar but not identical responses): 17 percent had Allscripts, 11 percent had Centricity, and 7 percent had Misys.
- EHRs were purchased between 1981-2010, with the majority of systems being purchased in 2004 and later. Thirty-four percent stated that their system met certification standards. In a related question to those without an EHR, 14 percent of all 1,360 respondents indicated they would purchase an EHR in the next six to 12 months and 32 percent responded "no" to purchasing an EHR within the next six to 12 months.
- In response to the question, *Is the EHR integrated with the hospital systems admission system?,* 18 percent said "yes," 57 percent indicated they did not know or said "no," and 19 percent did not respond.

Eleven potential barriers were presented in response to the question: *What are your greatest barriers to EHR adoption?* These barriers are listed in **Table 3** below, along with the response percentage indicating major and minor significance. The "no response" rate for the following questions ranged from 15-20 percent. The major barriers to EHR adoption were lack of capital and finding an EHR that met the provider's needs.

Table 3 - Potential Barriers to EHR Adoption

Potential Barriers to EHR Adoption	Major	Minor
The amount of capital needed	50 %	10 %
Uncertainty about return on investment	31 %	21 %
Resistance to adoption by physicians	15 %	31 %
Capacity to select, install and implement an EHR	26 %	26 %
Concerns about loss of productivity during transition	34 %	21 %
Concerns about inappropriate disclosure of patient data	19 %	34 %
Concerns about illegal record tampering or hacking	17 %	37 %
Concerns about legality of hospital donated EHRs	8 %	19 %
Concerns about legal liability if patients have more access to their information	10 %	35 %
Finding an EHR that meets provider's needs	43 %	14 %
Concerns that the system will be obsolete	26 %	29 %

The survey specified five conditions and inquired about the effect of each condition in incentivizing physicians to adopt an EHR. The "no response" rate for these questions ranged from 17-18 percent. **Table 4** below lists each condition and its response percentage indicating its impact as major or minor on the choice to adopt an EHR.

Table 4 - Incentivizing EHR Adoption

Incentivizing EHR Adoption	Major	Minor
Changing the law to protect providers from personal liability for record tampering by external parties via privacy or security breaches	40 %	20 %
Concerns about legal liability by NOT using the latest technology	27 %	30 %
Published certification standards that indicate whether an EHR has the necessary capabilities and functions	36 %	22 %
Incentive for the purchase of an EHR	48 %	13 %
Additional payment for the use of an EHR	46 %	15 %

In response to the final questions pertaining to electronic prescribing, 30 percent stated they were using electronic prescribing and 60 percent stated that they were not.

A.1.2 Estimates of Eligible Professionals and Eligible Hospitals That May Meet Medicaid Volumes for the EHR Incentive Program

Eligible Professionals

To identify North Carolina Medicaid professionals that may qualify for the Medicaid EHR Incentive Program in 2010, an analysis was conducted using 2009 NC Medicaid claims and encounter data and the below formula. This initial analysis yielded 3,098 "preliminarily qualified" EPs. As 61 percent of 2010 survey respondents (see *A.1.1.2 EHR Survey - Eligible Professionals)* currently used or planned to

purchase an EHR in 2010, this percentage applied to the 3,098 "preliminarily qualified" professionals resulted in a rough estimation of 1,889 possible EP participants in the program's first year (2011).

- 3,098 (Preliminarily Qualified EPs) x 61% (Survey Results *Section A.1.1.2: Total of Current EHR Use or Plan to Purchase*) = **1,889 EPs preliminarily qualified in 2011**

As of December 2011, roughly 807 of those 1,889 EPs had at least begun the attestation process with NC Medicaid.

This same analysis to determine "preliminarily qualified" EPs was repeated in December 2011 for dates of service from December 1, 2010 through November 30, 2011, and is shown in **Table 5** below. As of December 2011, NC Medicaid estimates 3,383 providers are "preliminarily qualified" or potentially eligible.

Formula: To estimate providers that have at least the minimum required volume of Medicaid patients to participate in the program, the following formula was used to estimate the total number of claims/encounters generated per provider per year:

3 claims per hour x 8 hours x 210 days = 5,040 claims/encounters per year

5,040 x 30% = 1,512 claims/encounters (for professionals qualifying under 30 percent rule)

5,040 x 20% = 1,008 claims/encounters (for pediatricians qualifying under 20 percent rule)

The following table reflects the estimated percentage of NC Medicaid-enrolled providers by provider type that potentially qualify for the Medicaid EHR Incentive Program as of December 2011.

Table 5 - Count of Medicaid Enrolled Providers and Preliminarily Qualified EPs (December 2011)

	Medicaid Enrolled Provider Count	Preliminarily Count of Potentially Qualified EPs	Percentage of Enrolled Providers who are Potentially Qualified EPs
Physician (Not including pediatrics & osteopathy)	18,783	2,017	10.7%
Pediatrician (Qualifying under regular 30% rule)	1,871	707	37.8%
Pediatrician (Qualifying under special 20% rule)		176	9.4%
Osteopath	40	5	12.5%
Nurse Midwife	92	0	0%
Physician Assistant	0	0	0%
Dentist	1,930	356	18.4%
Nurse Practitioner	1,340	61	4.6%
Total	**27,267**	**3,383**	**12.4%**

The estimated volume of qualifying providers may vary significantly from the actual number of program participants due to several variables; among them, EPs may average more or less than three patients per hour, Medicaid patient volume may change for EP in 2012 and beyond, and certain billing practices in NC Medicaid may exactly mirror actual patient encounters.

Eligible Hospitals

In order to identify potentially-eligible North Carolina hospitals, an analysis was conducted utilizing NC Medicaid annual cost reports. Acute care hospitals must meet Medicaid patient volume thresholds of 10 percent (children's hospitals are exempt from this requirement). As of 2010, North Carolina had 112 Medicaid-enrolled hospitals that qualify for incentive payments based on hospital category (e.g., acute care, children's, and critical access within the CCN ranges defined by CMS). Of these, it is estimated that 92 qualify based on the required Medicaid volume threshold.

Physician Assistants

In 2011, DMA approved allowing Physician Assistants (PAs) to register for their own Medicaid Provider Number (MPN). Enrollment will take effect on 4/1/2012 for all PAs, so this will be the earliest date eligible PAs may begin participation in the program. According to the North Carolina Community Health Center Association (NCCHCA), 130 PAs, nurse practitioners, and certified nurses work in federally qualified health centers (FQHCs) or rural health clinics (RHCs). PAs working in FQHCs or RHCs that are led by PAs are potentially eligible for the NC Medicaid EHR incentive program, assuming among other things, that they meet the required Medicaid/needy patient volume.

A.2 BROADBAND SURVEY

DMA and NC Healthcare Information and Communications Alliance, Inc. (NCHICA) contributed content to a survey conducted by the e-North Carolina Authority (e-NC) to assess the EHR readiness of NC's healthcare providers. e-NC is an initiative to promote the use of Internet across NC, with an emphasis on rural NC. e-NC conducted a major survey of homes and businesses to better understand the adoption and use of Internet services across the State. e-NC contracted with Strategic Networks Group (SNG) to initiate this survey about Internet connectivity and utilization beginning in early April 2010.

SNG invited approximately 68,000 organizations in North Carolina to fill out an online questionnaire on Internet connectivity and utilization. SNG sorted and analyzed responses by industry sector, including 14 health categories.

At a high level, the takeaway message from this extensive multi-organizational survey (including healthcare and non-healthcare organizations) can be summarized as follows:

Connectivity: Use of broadband services is very high across all types and locations of businesses and organizations. Only 1.2 percent of organizations/businesses use dial-up.

Broadband Utilization: Utilization of Internet-enabled applications and processes is still evolving. Simpler processes that have been available for a long time are heavily used across all types of users. Differentiation in utilization patterns emerge as processes become more complex and recent. The two most significant factors in utilization levels is size of organization and to which industrial classification an organization belongs.

Broadband and Deciding Where to Locate: Responses to the survey clearly indicate that availability and suitability of broadband plays an important role in corporate decisions as to whether to remain in a community, and if an organization is moving, which areas it is willing to consider.

Broadband Benefits and Impacts: Overall, the majority (57 percent) of organizations recognize broadband as "very important" across all benefits dimensions. The most generally recognized benefits are in the areas of improved efficiency and productivity. The most recognized external-facing benefit of broadband is in improving service to customers. Productivity-related benefits are recognized by more organizations than revenue-related benefits, such as market reach, competitiveness, increasing revenues, introducing new products, etc.

The following is an extract from the June 2010 report **E-Solutions Benchmarking – Technical Report** prepared for e-NC.

Purpose and Objectives

As part of the statewide North Carolina broadband planning project, surveys were conducted with businesses, organizations and households to collect information on the availability of broadband (high speed Internet) and the uses, benefits, drivers, and barriers for broadband. The survey results provide insights into gaps and opportunities for increasing broadband utilization by organizations and households. Email invitations were sent to over 74,000 organizations and 29,000 households across the state. The business survey deployment was also focused towards three sectors of specific interest: health organizations, nonprofit organizations, and county/municipal government organizations.

This report presents the results of the survey-based research for the State of North Carolina with focus on the key findings that may be considered in forward planning to influence adoption of broadband-enabled applications and uses, referred to as e-solutions.

Profile

Partial to full responses were received from 1,168 establishments that indicated that health services are a significant part of their operations. Approximately half (46 percent) of these were private businesses. The remaining 54 percent of respondents were evenly split between nonprofit and government. Of the government health providers, 72 percent were county or municipal, while 23 percent were state entities.

In examining the location of these health service establishments, 58 percent had multiple locations. Fourteen percent were based out of an individual's primary residence. Forty-eight percent of respondents came from counties designated as rural and 52 percent non-rural. The respondents consisted of administrators (61 percent), physicians (7 percent), support staff (11 percent) and "others" (22 percent).

Respondents were asked to identify what type of health provider they represented. A large number of respondents (55 percent) did not fit within the categories provided, making it difficult to identify the type of establishment they represent.

A breakdown of the size of establishments that responded indicates a large percentage of small establishments, with 47 percent having five staff or fewer.

High Level Summary

1. Larger size is generally associated with higher adoption levels.
2. Mobility has emerged as an important function for health organizations, with 62 percent of organizations stating that mobile Web functions were either essential or very important to their organization.
3. Hospitals lead the way for almost all types of applications and processes, with very high adoption in the areas of Picture Archiving and Communications Systems (PACS), Hospital Information Systems, Collaboration and Research (all 70 percent or higher). Hospitals lead a strong movement to adoption of EHR and Electronic Patients Records. While current use for EHR is only 54 percent in hospitals, an additional 40 percent are in the process of implementation or plan to implement in the next 24 months. There is significant evidence of EHR adoption among larger health providers.
4. In contrast, adoption or planning for remote services, such as home based services and remote monitoring, have relatively low levels of adoption and very limited evidence of growth.
5. Significant differences were found in assessments by different types of health providers around issues of Internet speeds (they matter more to hospitals) and loss of contact with patient (really matters to community mental health centers, but far less to community health centers).
6. Large establishments find most motivating factors to be very important. Among a large percentage of single person health providers, many of these same factors were not seen to be applicable. Across all sectors, productivity and improved health outcomes were the two most frequently cited motivating factors.
7. Researching personal health issues is the one area where household use of telehealth is high at 41 percent.
8. Current and planned use of most telehealth services by private households is low, with only 8 percent households currently using and 18 percent of households planning to use six of the seven available telehealth services. Nevertheless, respondents' willingness to explore telehealth services is high at 53 percent to 68 percent.
9. Only 3-9 percent of households who had used telehealth expressed any level of dissatisfaction. Depending on the type of telehealth service, between 55 percent and 69 percent of household respondents indicated that they were either "very satisfied" or

"satisfied" with their experience.

Connectivity

Of 1,136 respondents that indicated their establishment provided health services, only six (all nonprofits) were on dialup. At the other end of the spectrum, 16 percent of respondents reported having a fiber connection. Among the health service respondents, 12.7 percent reported having speeds that were "not fast enough." Reliability was reported as an issue by only 3.9 percent. Only 114 health providers took the speed test that was available through the survey. While this small sample indicates that the results should be treated with caution, the breakdown is provided in Appendix 3: Broadband Survey.

A.3 FEDERALLY QUALIFIED HEALTH CENTERS HIT/EHR FUNDING

North Carolina Community Health Centers serve Medicaid, Medicare, and the working poor, indigent, and uninsured patients for just over $1 per day, per patient. The impact of Community Health Centers (CHCs) has been significant for the State. In 2010, NC CHCs employed 2,315 full-time employees in medically underserved and rural areas. North Carolina is also home to 30 FQHCs with 148 service sites across the state. An additional 56 state-funded rural health centers are also a vital part of the primary care safety net in the state.[1]

Supporting the NC CHCs is the North Carolina Community Health Center Association (NCCHCA). The NCCHCA was created in 1978 to provide a collective voice for participating health centers across the state. The NCCHA represents the interests of NC's health centers to federal, state, and local agencies and officials. NCHICA also seeks support from foundations, corporations, and other private entities to increase the access of primary healthcare to all North Carolinians. In addition, NCHICA helps communities to create new health centers or expand existing ones.

The focus of NC CHCs is quality and comprehensive primary care with a strong emphasis on disease prevention and health maintenance.

NC Community Health Centers are composed of:

- 30 Health Center Grantees
- 148 Clinical Service Sites
- 5 School-Based/School-Linked Health Centers
- 4 Homeless Healthcare Grantees
- 2 Federally Qualified Health Center Look-Alike Facilities
- 1 Migrant Voucher Program
- 19 Migrant Voucher Program site
- 166 Physicians
- 130 Nurse Practitioners/Physician Assistants/Cert. Nurses
- 479 Nurses and other Medical Personnel
- 59 Dentists
- 55 Behavioral Health Providers
- 409,709 Patients
- 1,369,211 Patient Visits
- 52% of patients were uninsured (212,974)
- 21.3% of patients receive Medicaid (87,454)
- 95% of patients live below 200% of the federal poverty level (FPL)
- 73% live below 100% of FPL

[1] NC Rural Health Centers (DHHS Quarterly Legislative Report July 2010)

- 52,961 migrant and seasonal agricultural workers[2]

As of 2011, of the $2 billion ARRA funds available for community centers, 27 North Carolina CHCs received a total of $33.3 million from five different programs: the Capital Improvement Program (CIP), Increased Demand for Community Health Center Services (IDS), Facilities Investment Programs (FIP), Health Information Technology Systems/Networks (HIT), and New Access Points (US Department of Health and Human Services, 2009). CIP provided most of the federal ARRA funding ($20 million) to North Carolina's CHCs.

The CIP is a capital grant program that includes funding for HIT tools. **Table 6** below details the application and status of the various North Carolina CHC projects.

Table 6 - Application and Status of Various CHC Projects

Site	Applied for ARRA HIT Funds	Proposed Project	Funded	Progress
BRCHS	CIP	Practice Management System and EMR	Yes	Completed contract with Centricity
Carolina Family Health Centers	No – have approval to use excess funds from new building for EMR	EMR	Yes	Working on product selection
Caswell	No			
CommWell	CIP	Deploy Dentrix (electronic dental record) at all sites; teleconferencing equipment, conferencing and tele-psychiatry	Yes	Projects complete
First Choice	No			
Greene County Healthcare	Yes	Computer hardware	Yes	Completed fall 2009
Hot Springs	No			
Piedmont	CIP	EMR licensing for final site and GE	Yes	License purchase done; still working on

[2] North Carolina Community Health Association Report 2011

		server update		server upgrade
Bertie County Rural Health Assn	CIP	Purchase EMR	Yes	Product negotiations in progress
Anson	CIP	Purchase Citrix servers and thin clients	Yes	Complete
Goshen	CIP	Dedicated servers, equipment replacement, wireless installations	Yes	Complete
Roanoke CHC	CIP	Upgrade to certified EMR		EMR selected and implemented

A.4 VETERANS ADMINISTRATION AND INDIAN HEALTH SERVICE EHR PROGRAM

The Office of the National Coordinator for Health Information Technology (ONC) requested that NCHICA implement an instance of a Nationwide Health Information Network (NwHIN) compliant gateway for a mature Health Information Organization (HIO) in North Carolina. The Western North Carolina Health Network (WNCHN) served as the HIO and the Asheville Veterans' Administration (VA) Medical Center served as the primary partner in this project. The Asheville VA Medical Center provides care to approximately 100,000 veterans from Western NC, upstate SC and northern Georgia, with many of those individuals treated at WNCHN facilities.

The project was completed in September 2011, and the Asheville VA Medical Center became an early participant in the NwHIN. NCHICA expects to continue to use this project as a learning experience and incubation for expanding NwHIN connectivity for both public and private North Carolina health institutions. For more on the project, see *Section A.5.11.3 North Carolina Healthcare Information and Communications Alliance, Inc.*

Table 7 below lists the current hospitals and clinics operated by the VA in North Carolina. These hospitals use various versions of the VA-standard EHR system, *VistA*.

Table 7 - Hospitals and Clinics Operated by the Veterans Administration

VA Medical Centers
Asheville: Asheville VA Medical Center
Durham: Durham VA Medical Center
Fayetteville: Fayetteville VA Medical Center
Salisbury: Salisbury—W.G. (Bill) Hefner VA Medical Center
Outpatient Clinics
Elizabeth City: Albemarle Primary OPC
Hickory: Hickory CBOC
Community Based Outpatient Clinics (CBOCs)
Charlotte: Charlotte CBOC
Durham: Durham Clinic
Franklin: Franklin CBOC
Greenville: Greenville Clinic CBOC
Hamlet: Hamlet CBOC
Midway Park: Jacksonville CBOC
Morehead City: Morehead City CBOC
Pembroke: Robeson County CBOC
Raleigh: Raleigh CBOC
Raleigh: Raleigh II CBOC
Rutherfordton: Rutherford County CBOC
Wilmington: Wilmington CBOC
Winston-Salem: Winston-Salem CBOC

The Indian Health Services (IHS) and the Cherokee Indian Hospital (CIH) Authority

The CIH serves more than 10,000 members and implemented an EHR system—the Resource Patient Management System (RPMS) system—in 1986. The IHS graphical user interface (GUI) was implemented in 2004. The GUI provides the capability to process both administrative and clinical data, and provides the IHS Office of Information Technology (OIT) support, thereby lowering costs and enhancing functionality.

A.5 STAKEHOLDER INVOLVEMENT

Table 8 below is a high-level table listing the major North Carolina activities for which funding was provided through the ARRA legislation, totaling over $200 million.

Table 8 - ARRA Funding in North Carolina

ARRA Funding in North Carolina		
Grant Funding Opportunity	**Grant Lead Agency**	**Amount of Grant Award**
State HIE Cooperative Agreement	NC Health Information Exchange	$12.9 million
Medicaid Meaningful Use Planning	Division of Medical Assistance	$2.29 million
Regional Extension Center: NC Area Health Education Centers (AHEC)	North Carolina Area Health Education Centers Program at UNC Chapel Hill, assisted by Carolina Centers for Medical Excellence, North Carolina Medical Society, and Community Care of North Carolina	$13.9 million
Beacon Community	Southern Piedmont Community Care Plan	$15.9 million
Health IT Workforce Community College Consortia Program (non-degree programs)	Pitt Community College	$10.9 million
Health IT Curriculum Development	Duke University Center for Health Informatics (DCHI)	$1.8 million
University-Based Training Program (UBT)	Duke University Medical Center and University of North Carolina	$2.1 million
Broadband – BTOP Round 1	MCNC and North Carolina Research and Education Network (NCREN)	$28.8 million
Broadband – BTOP Round 2	MCNC, City of Charlotte, Olive Hill Community Economic Development, WinstonNet, and Yadkin Valley Telephone Membership Corporation	$115 million
Comparative Effectiveness Research: Mental Health Data Integration Project	N3CN, UNC Sheps Center, and DHHS	$991,332

The resources available through ARRA represent not only an unprecedented opportunity to help forge these unique elements into a truly cooperative and aligned system of care, but support a substantial body of stakeholders that can drive North Carolina to the needed HIE tipping point. A wide variety of stakeholders may not be direct recipients of ARRA funding; yet they contribute a vast amount of effort and funding so that the State can achieve higher levels of HIT use and will improve the exchange of health information. Major stakeholders are referenced below.

A.5.1 State HIE Cooperative Agreement

The State HIE Cooperative Agreement, led originally by the NC Health and Wellness Trust Fund as the State-designated agency, has spun off into a 501(c)3 organization now called the NC Health Information Exchange (NC HIE). This organization is described below in Section A.7.

A.5.2 Regional Extension Center: NC Area Health Education Centers

The NC Area Health Education Centers (AHEC) Program at the University of North Carolina, Chapel Hill, received a notice of grant award dated February 8, 2010 to perform the function of the North Carolina Regional Extension Center for HIT. NC AHEC has worked with the Carolinas Center for Medical Excellence (CCME), the North Carolina Medical Society Foundation (NCMSF), Community Care of North Carolina (CCNC), and the NC Institute for Public Health to build a detailed training program for the personnel in the nine regional AHECs across the state.

A.5.2.1 NC Regional Extension Center (REC) Technical Assistance Team

Via the statewide infrastructure of their nine regional AHECs, the NC AHEC REC staff provide direct, onsite and local support to primary care practices in their region. This support includes assessing the practice, assisting in the selection of the most appropriate EHR system, guidance on system implementation, security and risk assessments, and guidance with achieving meaningful use. As a subcontractor of the NC REC, the NCMSF is available for referrals to assist practices with financial assessments and consulting and have conducted some REC staff training on the financial indicators in a practice assessment. Vendor selection for EHR implementation can be difficult for practices due to the complexity of the systems, practice needs, practice size, and meaningful use standards. The original application by NC AHEC to the ONC included a provision for development of a group purchasing agreement; however, after further analysis of the marketplace, it was determined that contracting with a limited number of vendors would alienate other vendor products and stifle innovation by eliminating the newer products that come to the marketplace after selection. NC AHEC has instead chosen to build the capacity to support a large number of products to serve the diverse provider community by utilizing webinars and training materials from the vendor community shared on NC AHEC's internal information dissemination system available to all staff working in all practices.

A.5.3 Southern Piedmont Community Care Plan

The Southern Piedmont Community Care Plan (SPCCP) is one of 14 independent networks of Community Care of North Carolina (CCNC) and one of only 17 organizations nationwide selected to be a Beacon Community after a rigorous and competitive grant application and selection process. The Beacon Community Cooperative Agreement Program provides communities with funding to build and strengthen their health IT infrastructure and exchange capabilities. These communities of healthcare providers demonstrate the vision of a future where hospitals, clinicians, and patients are meaningful users of health IT, and together, help the community achieve measurable improvements in healthcare quality, safety, efficiency, and population health.

The overall goal of the Beacon program is to leverage CCNC's patient-centered medical home model, health information technology, and innovative interventions to improve care coordination, encourage patient activation (involvement in their medical care), and improve health outcomes in a high quality, cost-effective manner.

The projects each Health System and Health Department/Alliance are engaging in will help us meet these goals and lead to:

- Increasing health information exchange between providers, hospitals, and other appropriate stakeholders;
- Decreasing inappropriate emergency department (ED) utilization;
- Decreasing preventable hospital readmissions;
- Improving chronic care disease management for those with congestive heart failure (CHF), diabetes and asthma;
- Improving public health.

As of December 2011, the following milestones had been achieved:

1. The critical Master Service Agreements, Data Use Agreements, and Statements of Work (SOW) between Beacon partners were developed and signed, and the projects related to those agreements were approved from the local Beacon Project Team, Beacon Executive Committee, the Office of the National Coordinator for Health IT, and the Office of Grants Management (OGM). All of the projects submitted to the OGM have received the official Notice of Grant Award (NGA); thus, SPCCP has entered the implementation stage for its health IT projects.

2. At **Rowan Regional Medical Center**, the projects being implemented are the Informatics Center (IC) Data Connection, Transitional Care, bedside availability of computers and electronic health records (EHRs), and Project Red/Louise.

3. At **Carolina Medical Center-NorthEast (CMC-NE),** the projects being implemented are the Informatics Center (IC) Data Connection, Transitional Care, virtual home visits with remote monitoring, and Patient Safety Net and a COPD pilot.

4. At **Stanly Regional Medical Center**, the projects being implemented are the Informatics Center (IC) Data Connection, Transitional Care, and the implementation of Clinical Alerts.

5. At the **Rowan County Health Department (RCHD),** they are continuing to scan their medical record documents and they are actively using their electronic health record system. RCHD will be implementing electronic signatures and upgrading their EHR software to the newest version, which is certified for meaningful use.

6. At the **Stanly County Health Department (SCHD),** they are completing the scanning of their medical records in preparation for future EHR implementation.

7. At the **Cabarrus Health Alliance**, the medical record scanning and equipment purchases have been completed. The Insight EHR Child Health Module went live and the next module is Communicable Disease, due to be released in January 2012.

8. The next phase after EHR implementation at each of the Health Departments/Alliances will be a **Public Health Portal** that will enable authorized users to view demographic and community health data.

9. At the **North Carolina Community Care Networks (N3CN) Informatics Center (IC),** Beacon funding and resources are being leveraged to build the “pipes” necessary to have data flow from hospitals, providers, and health departments. Test servers are operational and Admission, Discharge, Transfer (ADT) data has been successfully passed into the IC’s Interface Engine from one source.

A.5.4 Pitt Community College

In March 2010, Pitt Community College (PCC) was named one of five institutions across the country to lead a regional consortium of community colleges to train thousands of new health information technology

(IT) professionals. The PCC-led consortium received a $10.9 million cooperative agreement from the U.S. Department of Health and Human Services (HHS) for the first year. The grant provides assistance for PCC to set up the consortium of 20 community colleges, including Central Piedmont Community College and Catawba Valley Community College, across a 13-state region that stretches through the southeast to New Mexico and includes almost one-third of the nation's population. Each community college is creating non-degree training programs designed to be completed in six months or less. Classes began in the Fall of 2010, and a third year no cost extension has been granted to this program, in part because of the cost effectiveness of distance education. This will allow the training to continue through March 2013 to better serve the needs of the healthcare community in meeting their goals of implementing the Electronic Health Record and meeting meaningful use requirements.

As of December 31, 2011, the total number of currently enrolled students in Region D is 6121 with 1404 completers.

A.5.5 Duke University Center for Health Informatics

The Duke University Center for Health Informatics (DCHI), in conjunction with its community college partners, Durham Technical, Rowan Cabarrus, and Pitt community colleges, have developed four components under the Curriculum Development Centers Program:

- Health Management Information Systems
- Installation and Maintenance of Health IT Systems
- Networking and Health Information Exchange
- Fundamentals of Health Workflow Process Analysis and Redesign

All 20 components developed by the Curriculum Development Centers, Oregon Health & Science University, University of Alabama at Birmingham, Johns Hopkins University, Columbia University, and DCHI, are being used to train the following roles:

- Practice Workflow and Information Management Redesign Specialist
- Clinician/Practitioner Consultant
- Implementation Support Specialist
- Implementation Manager
- Technical/Software Support Staff
- Trainer

Project Milestones:

- April, 2010 Curriculum Development Centers Awarded
- August 9-11, 2010 Curricular Material Training in Oregon
- October, 2010 version 1.0 posted for Regional Consortia
- May 16, 2011 version 2.0 posted for Regional Consortia
- June 20, 2011 version 2.0 released to the public
- Spring, 2011 version 3.0 public release

A.5.6 University-Based Training Program

Duke University and the University of North Carolina have partnered in the development of programs that will produce trained professionals for vital, highly specialized health IT roles. Trainees in Duke's program will complete intensive courses in 12 months or less. The programs at Duke will award a Management Masters in Clinical Informatics, awarded by the Duke Fuqua School of Business, or a post-masters certificate awarded by the Duke School of Nursing. The focus of the training at UNC is in the Department of Public Health and the Department of Information and Library Science. Together, Duke and UNC will train 83 one-year students and 9 two-year students. A total of ninety two students will be funded by this grant. As of December 2011, 64 students have received UBT funding for the Duke and UNC-CH informatics programs and 18 have completed/graduated. The table below provides student enrollment and completion by role.

Table 9 – Enrollment and Completion Totals in UBT Programs

UBT Role	Total # enrolled as of December 2011		Total # completed or graduated as of December 2011	
	1-Year Certificate Program	2-Year Masters Program	1-Year Certificate Program	2-Year Masters Program
Clinician Leader	22	6	5	0
Public Health Leader	7	0	1	0
Health Information Management and Exchange Specialist	17	1	8	0
Research and Development Scientist	1	0	0	0
Programmers and Software Engineer	8	0	4	0
Health IT Sub-Specialist	2	0	0	0

A.5.7 Microelectronics Center of North Carolina

Microelectronics Center of North Carolina (MCNC) is an independent non-profit organization that employs advanced networking technologies and systems to help various sectors of Community Anchor Institutions in North Carolina communicate with their constituents more effectively and meet their specific organization's mission, vision, and goals. This includes utilizing the services provided by MCNC to:

- Advance the availability of EHRs and healthcare information exchange in North Carolina's healthcare industry.
- Continuously improve learning and collaboration throughout North Carolina's K-20 education community.

- Improve the availability and affordability of high speed broadband capability to all Community Anchor Institutions in North Carolina

Broadband Internet Access

MCNC continues to make significant progress on the $144 million expansion of the North Carolina Research and Education Network (NCREN) with efforts expected to be complete by July 2013. This effort is part of the federal National Telecommunications and Infrastructure Administration's (NTIA) Broadband Technologies Opportunity Program (BTOP) award. The NTIA divided the awarding of its BTOP funding into two rounds and staged a highly competitive application process in each round. In Round 1, awarded in January 2010, MCNC applied and received funding for a $39.9 million project (including $28.2 million in Federal BTOP Funds and $11.7 million in privately raised match, including $7.7 million from the MCNC Endowment) to build 41,280 miles of newly-constructed fiber optic broadband infrastructure in 37 counties in southeastern and western N.C. For Round 2, MCNC, in concert with the Frank Hawkins Kenan Institute for Entrepreneurship and the School of Government at UNC-Chapel Hill, crafted an application called the Golden LEAF Rural Broadband Initiative (GLRBI). The GLRBI application proposed to build more than 1,200 miles of new middle-mile fiber in the northeast, north central, northwest and south central portions of the state. The proposed project is valued at $104 million with $75.75 million coming from BTOP, $24 million from the Golden LEAF Foundation, and $4.25 million in other cash and in-kind donations from private sources.

BTOP Round 1 Update

Overall, there are 410 miles of the 414 engineered path/conduit miles complete, with 272 miles of fiber placed. The remaining miles will continue to be slow going as they are in the Saluda Mountain area in the western part of the state.

On an extremely positive note, the Trent River bore in New Bern is completed, which involved the placement of a 4-inch steel pipe under the river more than 2,400 feet in length. This was the last major hurdle in the east toward completion in that region. There are a few final details to complete before the segment from Asheville-to-Cullowhee is complete.

BTOP Round 2 Update

Construction between Charlotte and Wilmington continues to be swift, with all five predefined sub-segments along that route now either complete or under active construction. In total, 168 conduit miles of the 256 miles associated with this path are now in the ground, amounting to 66 percent of this segment complete. The push from Rocky Mount towards the coast has been started, with 30 of the 47 miles of that path to Williamston complete. In total, 258 of 1,332 planned conduit miles are complete, with 438 fiber/conduit miles of the 1,694 miles project accounted for via complete indefeasible right of use (IRU) dark fiber arrangements or completed builds (roughly 26 percent of the approved project). In December 2011, work began on the process of installing 15 miles of fiber on bridges in the northeast while continuing to work in that area toward Elizabeth City and the Outer Banks. The route from Charlotte to Wilmington is planned to be finished in 2012 followed by the Hamlet-to-Raleigh path.

North Carolina Telehealth Network

MCNC, in collaboration with other organizations including the NC Office of Information Technology Services (ITS), is proud to be a partner to provide the NC TeleHealth Network (NCTN). The NCTN provides broadband services to health programs and sites across the state including free clinics, community health centers and public health agencies. Members of the NCTN have been successful, both individually and collectively, at attracting federal funds to build broadband telehealth capacity particularly in rural and underserved communities in NC. Phase 1 has completed telehealth connectivity to virtually all public health sites and free clinics in NC. Phase 2 will focus on small public and non-profit hospitals in cooperation with the NC Hospital Association. As of January 1, 2012, 54 NCTN sites are fully operational with another three in the final stages of provisioning. Approximately 40 non-profit hospitals will be added in the second phase of the project with site provisioning activities currently underway for the first 24. Connecting these healthcare institutions to the statewide network backbones will provide the high

availability, low latency broadband service that facilitates implementation of Health Information Exchange and Telehealth applications that will benefit all North Carolina citizens. With this in mind, ITS and MCNC will work closely with the North Carolina HIE team to ensure that the existing backbone networks and the existing connections they provide to public health facilities, free clinics, hospitals, and existing DHHS data repositories are utilized to their maximum extent in the HIE implementation process.

MCNC also completed upgrading infrastructure to support a robust suite of videoconferencing services to include interoperability between standards-based IP video (H.323), High Definition (HD), Cisco Telepresence and desktop videoconferencing. Health organizations at both state and national levels will be able to access and leverage these services as a valuable addition to the enhanced broadband connectivity.

A.5.8 Mental Health Data Integration Project

North Carolina has received more than $100 million in Comparative Effectiveness Research funding through our nationally recognized medical centers: Duke University Health Systems, Vident Health, University of North Carolina Health Systems, and Wake Forest University Health Sciences. Using grant funds from the Agency for Healthcare Research and Quality, North Carolina is in the implementation phase of a two-year collaborative Mental Health Data Integration Project between North Carolina Community Care Networks (N3CN), the University of North Carolina Cecil G. Sheps Center for Health Services Research, and three Divisions under the NC DHHS: the Division of Medical Assistance, Division of State Operated Healthcare Facilities, and the Division of Mental Health, Developmental Disabilities and Substance Abuse Services. The Project consists of three aims, which simultaneously advance NC's commitment to enhancing the knowledge base for care of complex patients with mental and physical co-morbidities:

a. Creation of an integrated database to enhance infrastructure for comparative effectiveness research.

We are linking three separate databases maintained by the NC DHHS to create an infrastructure for the analysis of healthcare needs and health services utilization of medically indigent and uninsured patients who present with complex medical and psychiatric co-morbidities. The three databases include Medicaid claims, state psychiatric hospital admissions, and state-funded outpatient mental health services.

b. Completion of a primary study to demonstrate the usability of the integrated database.

Sheps Center investigators will conduct a study of medical homes in the NC Medicaid program for complex patients with mental illnesses. Several hypotheses will be tested to assess the extent to which these patients engage in medical homes as readily as their non-mentally ill counterparts, and receive high-quality care for their mental illness and for medical co-morbidities.

c. Development of a structure for making the database available to the research community to support comparative effectiveness research, and to DHHS to support patient care, quality improvement, and care coordination across settings of care.

The ability to link data from the state psychiatric hospitals (HEARTS) and state-funded outpatient mental health services (IPRS) with the other health services reimbursed by Medicaid has two ongoing benefits.

The data set will enable researchers to comprehensively examine service delivery, costs, and quality of care received by patients with both medical and psychiatric conditions. To promote ongoing comparative effectiveness research for patients with complex mental and physical healthcare needs, we will establish an oversight committee to manage access to the data infrastructure, approve investigator requests

for data access, and monitor compliance with data use agreements. Health services researchers and epidemiologists are currently limited in studying these issues, because there is no single data source that describes services and diagnoses received in state-operated facilities, community mental health service providers, and community medical providers. Admissions to state psychiatric facilities for Medicaid recipients between the ages of 21 and 65 are not captured within Medicaid claims data, due to the Institute for Mental Disease (IMD) exclusion in Medicaid which prohibits Medicaid payments for these individuals. The linked database will be invaluable in addressing the medical reasons for the high rates of mortality reported for persons with serious and persistent mental illness. Further research along these lines can lead to interventions in both mental health and primary care settings that can seek to mitigate these problems.

The second benefit of this data linkage is to support care management, care coordination, and quality improvement activities to improve healthcare outcomes of beneficiaries of DHHS healthcare programs and services. For patients with medical, as well as psychiatric co-morbidities, who receive mental healthcare in the state system, N3CN will be able to include the additional mental health data in the patient care profile available to primary care physicians, care managers, and mental health service providers who work directly with the client. The linked dataset will enable better coordination of care across agencies and sites of care, and better planning for the transition from state mental hospitals to community services, for Medicaid recipients as well as uninsured patients in the state-funded mental health system.

A.5.9 Non-ARRA funding – Children's Health Insurance Program Reauthorization Act (CHIPRA) Grant

Under the leadership of Governor Bev Perdue and North Carolina's General Assembly, and the support of provider organizations and primary care providers, NC has built a statewide quality improvement infrastructure to improve the quality of care of Medicaid recipients with a special emphasis on the delivery of healthcare to low-income children.

CMS awarded 10 grants to states in order to establish and evaluate a national quality system for children's healthcare, which encompasses care provided through the Medicaid program and the Children's Health Insurance Program (CHIP). This grant is funded by the Children's Health Insurance Program Reauthorization Act of 2009 (CHIPRA).

The State of North Carolina received $2.2 million for the first year of the five-year grant that totaled $9.2 million. The State agency will be working with pediatric and family practices within Community Care of North Carolina to build on a strong public-private partnership that has documented successes in quality improvement, efficiency and cost-effectiveness of care for more than 12 years.

The CHIPRA statute mandates the experimentation and evaluation of several promising ideas related to improving the quality of children's healthcare. The applicant could choose between five grant projects, including multiple projects. The grant projects as outlined in the statute will (A) experiment with and evaluate the use of new and existing measures of quality for children; (B) promote the use of health information technology (HIT) for the delivery of care for children; (C) evaluate provider-based models to improve the delivery of care; (D) demonstrate the impact of model pediatric EHRs; and (E) create targeted models to demonstrate their impact on health, quality, and cost.

North Carolina was chosen as one of the 10 grantees. North Carolina's proposal highlighted the Community Care infrastructure, which has documented improvements in quality, efficiency and cost-effectiveness of care for Medicaid recipients and has longstanding partnerships with key provider organizations. North Carolina received grants for three out of five categories: A, C and D. The grant period of performance will be 60 months, from FY 2010 through FY 2015.

CMS is interested in utilizing the CHIPRA grants, in part, to further CMS Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) goals. These goals include improving access to, utilization of, and reporting of services to which children are entitled under EPSDT in areas such as oral health, vision, hearing, behavioral health, and obesity. Each component of the CHIPRA grant awarded to NC (i.e., performance measurement, provider-based models, and pediatric EHRs) offers opportunities for addressing these goals.

A.5.9.1 CHIPRA Grant Categories

Category A

NC will use its Community Care infrastructure to experiment, implement and evaluate the use of the new set of evidence-based quality measures indentified by AHRQ/CMS. NC will expand upon the current data collection system to incorporate the core set of child health measures released in January of 2010 and will work with local practices on the implementation, feedback, and the meaningful use of quality data for improvements in performance. This grant category will serve to 1) consider the experience of states with the initial core set of measures; 2) identify strategies for more efficient and effective performance measurement within and across Medicaid and CHIP programs at the state level; and 3) report on measures in a CMS-approved format.

CMS's objectives for category A are 1) to demonstrate that grantees can collect and report on the core set of child health quality measures identified by AHRQ/CMS; 2) to learn how best to collect data for core measures, identifying barriers and how they can be overcome; 3) to learn how stakeholders (e.g., states, providers, payers, consumer groups) use core measures; and 4) to measure the impact of the use of core measures on quality improvement activities, on children's access to and quality of healthcare provided by Medicaid and CHIP, and on transparency and consumer choice.

The vision of North Carolina over the five-year grant period is that all 24 of the child health measures will be collected and reported to CMS as well as to CCNC providers statewide. In addition, a process to determine the impact of the measures on the healthcare delivery system is being implemented. The CHIPRA team plans to report all measures annually to CMS. However, in order to focus on quality improvement, the team also plans to report quarterly to their networks and practices so that they can drive improvement at a network and practice level. Therefore, as these additional pediatric measures are incorporated into the performance measures program for Medicaid recipients, the quality of healthcare for children throughout NC will be improved.

To date, the CHIPRA team has been able to meet their objectives of defining a process to collect and report data on several of the 24 measures. They are currently able to report on 13 of the 24 measures and anticipate that by the end of 2012, they will be able to report on 23/24 measures. They have also added five additional measures labeled "NC unique measures" that they intend to report to CMS in addition to the core set. The CHIPRA team believes these measures will provide valuable information to CCNC practices.

The CHIPRA grant has also inspired several promising statewide initiatives. We are currently in negotiations with the North Carolina State Center for Health Statistics (SCHS), North Carolina Immunization Registry (NCIR) and Public Health to stream Vital Records and immunization data into the Informatics Center so reports on these measures can easily be accessed at a network and practice level.

The CHIPRA team is also collaborating with the DMA to roll out an "EPSDT Report Card" at a network and practice level. This report card will show, on a quarterly basis, EPSDT rates for all age groups under 21, rates of developmental & behavioral screens, autism screens, vision, hearing, BMI, and lead testing. They anticipate this report card will be ready for distribution by the end of 2012.

In addition to reporting on the measures, NC CHIPRA has hired 14 part-time Quality Improvement Specialists in the 14 CCNC networks (these networks support primary care practices throughout NC). These Category A QI specialists are responsible for analyzing practice and network level data relating to the 24 measures. The QI specialists are responsible for identifying trends in the data, defining areas for improvement, participating in content specific training regarding the measures and, in conjunction with

their network team, initiating quality improvement projects around these measures. The QI specialists will work within the network practices to assist with improvement processes. In June 2011, the QI specialists began to receive baseline data on many of the measures. Ongoing data will be available via the provider portal on a quarterly basis.

To date, the QI specialists have participated in a general CHIPRA orientation. In addition to the general orientation, the CHIPRA team also participated in a 4-day intensive Quality Improvement training through the NC AHEC. The QI specialists will also receive ongoing monthly training and technical assistance for the duration of the grant period by CHIPRA's analyst and pediatric physician consultant, as well as members of the NC Center of Excellence for Integrated Care. These trainings and technical assistance will be specific to the 24 measures. Topics have/will include how to:

- Retrieve and evaluate data;
- Work with individual practices regarding specific measures to improve quality of care;
- Track quality improvement projects;
- Establish links in the community and make use of Health Department wrap-around services; and
- How to properly bill and code for services.

Training regarding clinical content includes:

- General Bright Futures guidelines;
- BMI coding and pediatric obesity prevention;
- Dental Varnishing;
- ABCD (Developmental and Behavioral screening, referral and follow up);
- MCHAT (Autism Screening);
- New AAP ADHD guidelines;
- ED utilization; and
- Well-Child Visits and routine screening for school-age children and adolescents.

Category C

CMS objectives for category C are to evaluate the effectiveness of new or expanded provider-based models that: measurably improve the quality of care provided to children covered by Medicaid/CHIP; are supported by collaboration across multiple payers and stakeholder groups; are cost effective; and, result in systemic change and improvement to the delivery of healthcare for children at a local, state or regional level.

Through Category C, NC CHIPRA will develop and implement a plan to strengthen the medical home for children, particularly children and youth with special healthcare needs and to ensure the coordination of treatments and services within their communities.

A learning collaborative model is being used for the Category C initiative. This project has been named ***CHIPRA Connect*** as it is all about connections, linkages, and relationships. An initial group of eleven practices within four CCNC networks were chosen to participate in the first cohort. The learning collaborative lasts 18 months and will be repeated with a second cohort in the spring of 2012.

In March 2011, the NC CHIPRA team a two day CHIPRA Connect Kick-off training which consisted of roughly 50 participants from the 11 practices and their networks. During this session the Connect practice teams received training on:

- CHIPRA overview and the Learning Collaborative Model (including PDSA);
- Community linkages and referrals;
- Maternal Depression Screening;
- Child and Adolescent Mental Health Risk Factors and Screenings;
- Birth to five General Developmental and Autism Screenings; and
- Overview of each practice's baseline data.

The practice team, which is comprised of 2-5 members from each practice, also participates in monthly training/technical assistant calls.

Four full-time QI specialists have been hired to work with the four networks and 11 practices in CHIPRA Connect. In addition to participating in the monthly trainings, the QI specialists are given intensive technical assistance by the NC Center of Excellence for Integrated Care. This team provides regular site visits as well as technical assistance to the practices and networks.

With assistance from the NC Center for Excellence for Integrated Care, the QI specialists initiate Plan Do Study Act activities within each practice. In order to get real time data about progress, monthly chart extractions are also performed at each practice. Run charts are populated and feedback is given back to the QI specialists and the practices each month. The Run Chart data is currently available in the N3CN IC.

QI projects vary from practice to practice. The CHIPRA team intentionally chose practices with a wide range of skill levels and community resources to participate in the first cohort so they could see how these practices would progress with the various initiatives. Projects include:

- Practices utilizing the AAP Mental Health Toolkit – eliciting concerns, engaging families, Motivational Interviewing, common factors approach, valid screening tools (full day training on the Mental Health Toolkit in July 2011);
- Practices linkages in their communities; reliable communication between systems, with specialists, Local Management Entities (LME), Child Development Service Agency(CDSA), schools and public health;
- Implementation of a Risk Stratification Tool;
- Implementation of the PORRT (Priority Oral Health Risk Assessment and Referral Tool); and
- Implementation of various screening tools specifically for Maternal Depression and screening tools for school age children and adolescents.

CHIPRA is also involved with several statewide mental health initiatives including projects surrounding Attention Deficit Hyperactivity Disorder, Medical Home for children in foster care, obesity prevention, and co-location. The CHIPRA team has actively participated in the ABCD State Advisory and Quality Improvement committees, the CCNC Pediatric Workgroup and the Institute of Medicine Task Force on early childhood mental health.

Category D

CCNC is currently working with the Centers for Medicare & Medicaid Services (CMS), on implementing and evaluating a Pediatric Electronic Health Record model. Only the states of North Carolina and Pennsylvania have been selected for this pilot grant program to evaluate the effectiveness of the model in

improving child healthcare quality. North Carolina is taking the unique approach of evaluating the model among smaller, independent healthcare providers, across a variety of EHR vendors.

The model is not a software application; rather, it is a set of standards based on best practices in quality child healthcare. Vendors who agree to participate in the project will be far ahead of the curve when Pediatric EHRs are certified for meaningful use, as that certification will be based on the model.

To date, for this project, CCNC has established a set of quality improvement measures that are aligned with national, state, and local priorities, and has engaged providers and key stakeholders in discussion around those measures. Additionally, EHR vendors doing business in the state have been approached to participate in the evaluation of their products with application of the model requirements. This has also allowed vendors to showcase the pediatric content and function currently available in their systems. As the evaluation proceeds, trends should emerge that identify the areas of strength and opportunity in the model's effectiveness as a model of excellence in building information technology for use in child healthcare. Evaluation of the Pediatric EHR model includes:

- Utility and functionality for providers that care for children;
- Adequacy to address gaps in current EHR products for pediatric care; and
- Improvement in quality indicators.

A.5.10 Office of Rural Health and Community Care

The North Carolina Office of Rural Health and Community Care (ORHCC) helps communities access low-cost medical care. Since it was created in 1973, ORHCC has opened 86 rural health centers across the state. Currently, ORHCC supports 28 rural health centers with funding and technical support. ORHCC also helps to place medical, psychiatric, and dental providers in communities throughout the state. Rural hospitals, as well as many statewide medical facilities that treat poor and uninsured residents, may receive help through grant funds. Qualifying patients may take advantage of drug companies' free and low-cost drug programs through ORHCC's medication assistance program.

ORHCC has several initiatives related to EHR adoption and HIE activities including:

- **Rural Health Centers** that assist underserved rural communities to provide accessible primary medical services for all persons—regardless of their ability to pay—through financial assistance to community-owned, nonprofit rural health centers. To receive financial support, these centers must participate in the Medical Access Plan (MAP) to provide health coverage to low-income (less than 200% of poverty), uninsured residents. A limited pool of capital funding supports the construction and equipping of rural health centers. Such improvements may include roof repair, minor renovations, technological upgrades, HVAC replacement, and new construction.

- **Uninsured and Indigent Grants** (Community Health Grants) improve access to health care services for NC's uninsured and indigent residents through a Request for Application (RFA) process whereby non-profit primary care safety-net organizations such as community health centers, rural health centers, local non-profit health centers, free clinics, public health departments, and school-based health centers, may apply for funding.

  The provision of cost-efficient health care is increasingly tied to the ability to share timely information among health care providers. For health care safety net providers, this sharing of information will be accomplished through providers entering into agreements with a Qualified Organization (QO) to enable them to access and submit data in the North Carolina Health Information Exchange (NC HIE). To maintain access to appropriate, cost-effective care, it is critical for safety net providers to establish linkages with QOs. These linkages will also allow many safety net providers to qualify for the incentives offered through the Center for Medicare & Medicaid Services (CMS) for Electronic Health Records (EHR) meaningful use.

- Community Care of NC organizes **community health networks** that are operated by community physicians, hospitals, health departments, and departments of social services. Through these networks, Community Care of NC establishes the local systems needed to achieve long-term quality, cost, access, and utilization objectives in the care management of Medicaid recipients. CCNC also provides a means to test innovative strategies, experiment, and evaluate the use of new and existing quality measures.

- The HRSA funded **State Health Access Program** (SHAP) grant demonstration is being built upon the infrastructure of Community Care's primary care medical home model in 2 pilot communities (Warren County and Pitt/Greene Counties). CCNC-UP provides uninsured parents of children with Medicaid or CHIP coverage with a limited benefit plan that includes a medical home and emphasizes primary care, prevention and chronic disease management. In August 2011, North Carolina requested a "Change in Scope" of its SHAP grant during the 12 month no-cost extension period to utilize approximately $2.8 million in unobligated SHAP funds to undertake a number of unfunded projects around current efforts to increase access to coverage for the uninsured in North Carolina and to help prepare the state for implementing various provisions of the Affordable Care Act (ACA).

  In November 2010, the Office of the Controller's Purchase of Medical Care Services Unit (POMCS), on behalf of ORHCC, began processing CCNC-UP network providers' claims and transferring enrollment, reimbursement, and utilization data by electronic extract to the Care Management Information System (CMIS). In September 2011, the HealthNet Network at Toe River Project Access was selected to pilot the submission of HealthNet enrollees' eligibility and enrollment data and HealthNet providers' encounter claims to POMCS for claims processing. POMCS will, in turn, transfer the claims data by electronic extract to CMIS for care management, reporting, and utilization review, both locally and at the state level (in aggregate). ORHCC staff collaborated with NCCCN, DMA, and Office of MMIS Services (OMMISS) staff to establish business rule specifications and processes for provider enrollment, claims processing, and reporting for CCNC-UP and HealthNet that align with Medicaid's plans for the new multi-payor MMIS system in 2013. Although the CCNC-UP pilots will be finished in August 2012 as a result of Congress not funding SHAP for FFY 2012 and the CSR for CCNC-UP has been withdrawn, ORHCC staff continues to meet and communicate regularly with OMMISS and DMA staff to prepare for HealthNet encounter claims processing under MMIS in 2013.

A.5.11 Other NC Stakeholder Activities

Academic medical centers, such as Duke University Health System, University Health Systems of East Carolina, University of North Carolina Health System, Wake Forest University Health Sciences, and other major hospital systems such as Carolinas Healthcare System, Mission Health Systems, Moses H. Cone Memorial Hospital, and Wake Med Health have invested in improving the capabilities of their integrated delivery networks (IDN). They have created or are enhancing the medical coordination and quality monitoring functionality of their IDN systems' environments. This includes more data sharing, integration and communications capabilities of the main hospital systems with the Electronic Health Record capabilities of affiliated and non-affiliated medical practices within their respective medical trading areas. In many cases this communication uses a peer-to-peer communication methodology. Agents from these systems are well represented on the board of the NC HIE. These academia entities share a common vision of creating a true health information exchange capability for the State.

A.5.11.1 NCMS and NCMSF

The North Carolina Medical Society (NCMS) and the North Carolina Medical Society Foundation (NCMSF) continue to work with physicians, physician assistants, and statewide partner organizations to achieve improved patient care and outcomes.

Health Information Exchange

For the past year, NCMS has worked with stakeholders across NC and the Health and Wellness Trust Fund Commission to incorporate physician recommendations regarding the HIE. Information regarding this collaborative effort is reported to the NCMS membership. In the future, NCMS will work toward adoption and use of the HIE to ensure quality patient care and decreased healthcare costs.

Electronic Health Record Loan Fund

A key component of the HITECH act within the American Recovery and Reinvestment Act of 2009 (ARRA) is competitive grant funding for states to establish a loan fund for health providers to purchase and implement EHR. In the absence of funding from this program, the Health and Wellness Trust Fund Commission (HWTFC) provided a limited EHR pilot loan fund program for providers in rural underserved Tier 1 counties in the State. On June 22, 2010, the HWTFC approved a technical assistance contract to NCMSF to create and evaluate a program for the EHR Loan Fund. Due to NCMSF's experience in practice management and financial planning work with small rural practices in underserved regions of the State, NCMSF implemented a pre-qualification process for the loan fund. Pre-qualification ensures practices are able and ready to implement an EHR system to accomplish meaningful use, and includes:

- Commitment to interface with NC HIE;
- Participation in ongoing technical assistance from the REC and NCMSF;
- Preparation of a financial and business plan;
- Creation of a project plan for EHR implementation;
- Assurance of readiness to begin EHR implementation; and
- Selection of a certified EHR product.

When the HWTFC was abolished in July 2011, the EHR Loan Fund Program was transferred to the Office of Health IT at NC DHHS. As planned, funds are provided to Self-Help of Durham, NC, to manage the loan agreement and funds disbursement. NCMSF is working closely with Self-Help to provide information from the NCMSF pre-qualification process and ongoing REC technical assistance to Self-Help loan officers in the assessment of practices' progress toward meaningful use as well as Medicaid or Medicare incentive payments offered when meaningful use is achieved. Since the practices' ability to meet meaningful use standards will affect their loan repayment ability, progress will be reported to Self-Help so that the loan team can proactively identify any such issues and work with loan fund providers to adjust terms, as necessary.

Provider and Practice Manager Education

NCMSF, in partnership with the NC Medical Group Managers Association, provides Webinars or "Lunch-Time Lessons" for providers and their staff. REC team members have provided three Webinar detailing the REC activities for more than 100 participants.

Information is provided at the NCMS Website which provides information on the REC, NC HIE and other HIT-related activities. Information is updated and included in North Carolina's weekly Medicaid Bulletin to more than 6,000 physician members.

Community Practitioner Program (CPP)

NCMSF provides loan repayment funding to 17 new primary care providers in rural underserved areas of NC. To date, at least 13 new providers have been funded with the requirement that their practices participate and commit to EHR adoption and to becoming a "patient-centered medical home." NCMSF will provide technical assistance and support free of charge to these practices to ensure their success as well as quality care for the patients in their practices (www.ncmsfoundation.org).

A.5.11.2 North Carolina Hospital Association

The North Carolina Hospital Association (NCHA) has a diverse strategy to help hospitals achieve meaningful use of electronic health records (EHR) and health information technology (HIT) to create significant clinical improvements and lower the cost of healthcare delivery. Member hospitals stand to gain as much as $540 million in Medicare and Medicaid incentive payments through the Health Information Technology for Economic and Clinical Health (HITECH) portion of the American Recovery and Reinvestment Act (ARRA). The main goals of HITECH are quality improvement and cost reduction by moving from a transactional basis to process-driven delivery of healthcare. NCHA's goals are aligned with HITECH and the State's goals in three areas of focus that will help hospitals become meaningful users of CEHRT:

- Implementation of certified electronic health record systems;
- Reporting of quality measures to the Centers for Medicare and Medicaid Services and/or states; and
- Exchanging of clinical data with other providers.

NCHA is also focused on helping hospitals and hospital-owned physician practices acquire broadband Internet access and education opportunities regarding HITECH and Meaningful Use, and are especially concerned that small and rural hospitals and safety net providers not be left behind in the rapid period of HIT adoption. A wave of healthcare reform-related grant opportunities will likely bring additional projects to the attention of hospitals in the near future, and ongoing projects such as ICD-10 conversion will continue to be important and require action on the part of NCHA and member hospitals.

Create Low-Cost Health Information Exchange Using Existing Technology

NCHA is partnering with the North Carolina Medical Society (NCMS) and CCNC to provide the North Carolina Healthcare Exchange (NCHEX), a voluntary, not-for-profit HIE that leverages existing technology installed as part of the North Carolina Hospital Emergency Surveillance System (NCHESS) project, a state-mandated ED data program to benefit the state's syndromic surveillance and epidemiological research efforts. NCHESS hospitals also provide 25 percent of the data used by the Centers for Disease Control for their BioSense program. In June 2011, the North Carolina Division of Public Health (NCDPH) announced that the North Carolina Hospital Emergency Surveillance System (NCHESS) is the designated pathway for eligible hospitals to meet the meaningful use syndromic surveillance objective as part of the Medicare and Medicaid EHR Incentive Programs.

NCHEX leverages an existing relationship between Thomson Reuters and CareEvolution, whose HIE platform provides the majority of the technical infrastructure of the statewide exchanges for the South Carolina Health Information Exchange (SCHIEx), West Virginia Health Information Network (WVHIN), Alabama OneHealthRecord, as well as private exchanges. NCHEX will provide HIE services to hospitals as well as affiliated and unaffiliated physician practices using the Thomson Reuters HIE Advantage platform, which will be certified for up to 12 meaningful use objectives by the Certification Commission for Health Information Technology (CCHIT) in 2011. NCHEX will also offer the Orion HIE platform in partnership with the NC HIE in 2012. All participating clinicians will have a virtual Single Patient Record (vSPR) within their existing EHR; non-participating providers will have access to the same information using a secure web browser.

NCHEX is standards-based and provides numerous features to all participants, including:

- Patient summary (demographics, allergies, problems, providers, procedures);
- Inpatient summary (36-most recent hours of hospitalization data);
- Reports (CCD, discharge summary, pathology, radiology, etc.);
- Lab Viewer (all available labs);

- Messaging (patient, provider);
- Real-time quality surveillance (disease and condition reporting);
- Eligibility reporting;
- Uploading of external documents;
- EMRLite and ePrescribing (MU certified, SureScripts certified);
- Personal health record; and
- Logging and auditing.

In addition to these features, the platform is also capable of:

- Public health reporting;
- Immunization registry reporting;
- CCD generation for use with external providers and HIEs;
- NwHIN connectivity;
- Patient inquiry through the Continuity of Care Viewer by community physicians;
- Medication reconciliation;
- Clinical alerts; and
- Never-event management.

NCHEX is in a pilot phase with the Cone Health and WakeMed health systems, which consists of seven hospitals, eight emergency departments and 57 hospital-owned physician practices. NCHEX has over 1.3 million unique patients in the system at present, and the pilot is expanding while also converting to a production system. There is no cost to pilot participants, and the goals of the pilot include providing standards-based access and data interchange capabilities for public health reporting, disease management for Medicaid and case management for safety net providers, and to build local collaboratives among providers using NCHEX to facilitate achievement of specific clinical goals.

Medicaid Admission/Discharge Data Initiative

NCHA, NC DHHS, and N3CN are collaborating on the Medicaid Admission/Discharge Data Initiative to enhance the coordination of care for Medicaid beneficiaries. The initiative builds on existing care management efforts already underway between hospitals and local community care networks and utilizes technology already in place in hospitals. NCHA, N3CN, and DHHS are working with Thomson Reuters Healthcare to provide a twice-daily electronic data for Medicaid patients to N3CN's Informatics Center. The data feed will work with technology already installed in hospital/system and there is no additional cost to hospitals to participate. The technology is known under several names including Care Focus, Clinical Xpert Navigator, and Mercury MD MData. The technology was widely installed in many North Carolina hospitals/systems with funding from NC Division of Public Health under the name North Carolina Hospital Emergency Surveillance System-Investigative Monitoring System (NCHESS-IMC). Local Community Care agencies will be able to access the Medicaid patient data directly from the Informatics Center pursuant to network system access agreements they have in place with N3CN.

Improve Patient Safety through Quality Reporting and Collaboration

The North Carolina Center for Hospital Quality and Patient Safety, a federally-designated patient safety organization (PSO), is leading our hospital quality improvement activities and will assist hospitals to understand and report the 15 quality measures required under sections 4101(a) and 4102(a)(1) of the

HITECH Act. These Stage 1 measures are thought to be extractable directly from a HITECH-certified EHR and should not require manual extraction or chart abstraction. Additional quality reporting measures and procedures are likely to be required in 2011 and 2013.

Support Small and Rural Hospitals in Health IT Adoption

To assist hospitals with HIT education and EHR adoption, NCHA and the North Carolina Rural Health Center are coordinating with private funders and federal programs from ONC to become meaningful users of EHR. The Duke Endowment has funded comprehensive HIT strategic planning for 19 rural hospitals using the services of the Computer Sciences Corporation (CSC). Additional private grants are under consideration. Rural and Critical Access hospitals are leveraging education opportunities through the Regional Educational Center (REC) federal funding program from ONC, which is being managed by the NC Area Health Education Centers (AHEC). Hospitals will not receive assistance from the REC grant during the first two years of the initial four-year program. NCHA and the Rural Health Center will continue to work with the REC staff to attempt to deliver comparable resources using grant opportunities and relationships with qualified vendors through NCHA Strategic Partners and other stakeholders.

Develop Strategic Partnerships with Qualified Health IT and EHR Vendors

NCHA Strategic Partners is evaluating qualified vendors to provide value-based purchasing of HIT education, strategic planning, EHR selection and implementation services and health information exchange (HIE) to hospitals. Products and services to meet the needs of hospitals and physician practices are continually being evaluated.

Promote Better Connectivity Among Providers

Hospitals and providers will require fast and stable Internet connections to be able to share clinical data and become meaningful users of EHR. NCHA has partnered with the North Carolina TeleHealth Network (NCTN) to create a private statewide broadband network of healthcare providers to help meet the growing bandwidth needs that will result from EHR adoption and HIE activities. The hospital phase of the project is known as NCTN-H and will provide an 85% discount for public and not-for-profit hospitals; other hospitals will be able to leverage a volume discount and join the network as well. Currently, 85% of NC licensed hospitals and 76% of all NC hospitals are registered and eligible to participate in the NCTN offering. NCTN-His reviewing a recent notice of proposed rulemaking (NPRM) from the Federal Communication Commission (FCC) entitled "Rural Health Care Support Mechanism" to create a permanent discount program for broadband for public non-profit healthcare providers, modeled on the 5-year funding mechanism of the NCTN program. NCTN is also supporting a new Broadband Technology Opportunities Program (BTOP) grant with the Microelectronics Center of North Carolina (MCNC) and their North Carolina Research and Education Network (NCREN) program to bring high performance broadband to healthcare providers.

ICD-10 Collaborative

NCHA and NCMS are collaborating to help hospitals and providers tackle the issue of converting from ICD-9 to ICD-10. The two entities recently cosponsored an ICD-10 education session and have been engaged in the efforts of the North Carolina Healthcare Information & Communications Alliance (NCHICA). The collaboration with NCMS will build on these types of activities. ICD-10 conversion will require massive changes to health information systems, business practices and provider workflows, and the goals of the collaborative will be to identify educational opportunities, network with existing resources, identify qualified vendors to assist hospitals and physician practices with all aspects of conversion, and help track the progress of compliance.

Improve Public Health Surveillance

The North Carolina Bio-Preparedness Collaborative (NCB-Prepared) is a $5 million federal grant from Homeland Security to enhance the state's current surveillance and threat-detection capabilities and serves as a model for the nation. NCHESS hospitals currently provide 93 percent of the data consumed by the state's bio-surveillance system and NCHA is participating in the Collaborative to offer strategies on

how to provide more, and better, data into the NCHESS system that could be of benefit to NCB-Prepared as well as the state's Medicaid analytics capabilities.

A.5.11.3 North Carolina Healthcare Information and Communications Alliance, Inc.

The North Carolina Healthcare Information and Communications Alliance, Inc. (NCHICA) has a mission of "assisting NCHICA members to transform the US healthcare system through the effective use of information technology, informatics and analytics." The membership, composed of more than 230 organizations including government agencies, healthcare providers, payers, professional associations, and health IT partners, has demonstrated the value of collaboration in achieving this mission for the past 17 years. In support of the HIT activities underway in North Carolina, NCHICA has been active on many fronts, including the following:

- [NC] Regional Extension Center (HITECH §3012): At the request of the Governor's Office, NCHICA formed a "Business Partner Alliance" and hosted an aggregation of interests in support of the NC REC. Several dozen NCHICA members and community members expressed a commitment to assisting the NC REC as it developed its strategies and tactics for assisting physician practices in achieving electronic health record systems that meet the requirements to receive ARRA HITECH incentive payments.

- Health information exchange (HITECH §3013): NCHICA has been an active supporter of the NC Health and Wellness Trust Fund and its successor organization the NC Health Information Exchange (NC HIE) as the State Designated Entity to receive Federal funds to establish statewide health information exchange capabilities. Many NCHICA members are participating in the continuing work to implement the NC HIE to integrate information technology into clinical education & workforce development; the successful HIT Workforce application from NC was prepared with NCHICA consultation. NCHICA also facilitated several connections among interested parties in other states.

- Strategic Health IT Advanced Research Projects (SHARP) and Beacon Community: SHARP and Beacon Community applications from NC were prepared by individuals who also are NCHICA members; and NCHICA consulted with most applicants on their approach and provided letters of support for all applicants.

- Nationwide Health Information Network (NwHIN) Exchange project: NCHICA has been a participant in the NwHIN Exchange project as established by the US DHHS Office of the National Coordinator for Health Information Technology (ONC) since 2005. The NwHIN Exchange CONNECT Gateway project was funded by NCHICA's contract with the U.S. Department of Health and Human Services' ONC for Health Information Technology. This initiative connects the 16 hospitals participating in the Western NC Health Network to the NwHIN and then to the Charles George Veterans Administration Medical Center in Asheville so that the records of the 30,000 veterans in that region may be exchange for patient care with the affirmative consent of those veterans.

The NwHIN Exchange CONNECT Gateway links an organization's health information systems with those of another organization using NwHIN standards and specifications as defined by the ONC. WNCHN is a collaboration of 16 hospitals and the founder of Western North Carolina (WNC) Data Link. WNC Data Link connects WNCHN hospitals by allowing authorized physicians and clinicians to view electronic patient records across all WNCHN hospital systems. The Asheville VA hospital and the WNCHN hospitals share many patients since they are in close proximity to each other. In a 12-month period, there were 9,221 veteran visits to a WNCHN hospital.

NCHICA selected Mirth Corporation's Meaningful Use Exchange platform to achieve NwHIN gateway connectivity. Mirth is a leader in commercial open source products and services powering healthcare interoperability. The NHIN Gateway went into production in March of 2011.

NCHICA was one of the lead organizations in the ONC-funded Health Information Security and Privacy Collaboration (HISPC) that developed model privacy policies, procedures, and educational materials in close collaboration with 44 other states and territories. Application of the materials and lessons learned by the NCHICA members participating in this effort will greatly assist NC's approach to protecting the privacy of individuals as electronic health information and exchange advances across NC.

NCHICA has been a leader in incubating healthcare network initiatives for the State, including for the North Carolina Immunization Registry (NCIR) and the North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT). Both of these initiatives have been in uninterrupted operation for more than a decade. NCHICA anticipates that production use of the previously-described NwHIN Exchange CONNECT Gateway will provide a logical definition of future operation and management of future implementations. Potential second-year scenarios include further connectivity to the NwHIN Gateway by public and private North Carolina-based entities and the incorporation of the NwHIN Gateway within statewide NC HIE efforts. NCHICA does not enter into this project with long-term ownership expectations; rather, NCHICA's objective is to establish an NwHIN Gateway in a manner that supports its continuous production operation into the future.

Exchange Project Update

After five years of ONC funded involvement in the Nationwide Health Information Network (NwHIN), Exchange Project, NCHICA continues to make good progress. Holt Anderson, Executive Director, NCHICA, serves as Vice Chair of the NwHIN Exchange Coordinating Committee, the national governance body for the Exchange Project. Additionally, NCHICA's implementation with the Veterans Affairs hospital in Asheville, NC went into production in March 2011 and is supporting exchange of electronic health records to support the treatment of Veterans in Western NC.

Direct Project Update

As reported to members through the NCHICA Update, Direct is a set of tools and services that will enable providers to exchange secure messages using a "push" model over the Internet to support meaningful use. It will achieve this using point-to-point secure email. Direct is intended to augment other methods of exchanging information, and to be complimentary to HIE efforts.

NCHICA has established an Informatics Roundtable to complement the CIO-CMIO Roundtable. Both activities provide a neutral environment for executive level representatives from across healthcare organizations to meet for the development and sharing of model approaches to meet compliance requirements for health information exchange and privacy and security regulations. Recent initiatives include deliberations on hosted services/cloud computing, patient portals, informatics, and analytics.

NCHICA and a number of its members are collaborating to submit a major proposal in response to the $1 billion Innovation Challenge grants. The NCHICA proposal will focus on the area of patient portals and their role in patient engagement in their healthcare.

A.5.11.4 NC DHHS HIT Efforts in State-Operated Facilities

The Division of Mental Health/Developmental Disabilities/Substance Abuse Services (DMH/DD/SAS) and the Division of State Operated Healthcare Facilities (DSOHF), two divisions within NC DHHS, continue to move forward with formal reviews and approvals necessary to issue the Request for Proposal (RFP) for implementation of the Federal Veteran Administration's Hospital Management System (VistA) to provide a standardized EHR in all state-operated health facilities. The RFP was modified to include the HIE requirements when the system is fully implemented.

DHHS approved the implementation of an EHR system pilot project for the DMH/DD/SAS Community Local Management Entities (LMEs). This project will implement the Federal Substance Abuse and Mental Health Services Administration's Web Infrastructure for Treatment Services (WITS). Both of these systems are open source software technology. This pilot is to demonstrate interoperability between the state-operated facilities VistA EHR system and the WITS EHR.

Planning and implementation of these HIT/HIE efforts are ongoing.

A.5.11.5 NC Emergency Medical Services

The North Carolina Office of Emergency Medical Services (EMS) is the State regulatory agency for Emergency Medical Services. Emergency Medical Services functions at the local level through 100 county-based EMS systems. These 100 EMS systems coordinate the service and care provided by the 540 EMS agencies and 36,000 EMS professionals functioning in NC. More than 1,400,000 EMS events occur in NC each year.

NC EMS regulations require an electronic patient care report to be completed on each EMS patient contact. This Pre-Hospital Medical Information System (PreMIS) is maintained through a contractual agreement by the EMS Performance Improvement Center (EMSPIC) at the University of North Carolina-Chapel Hill. EMS agencies are required by 10A NCAC 13P to complete an electronic patient care report and submit it into the PreMIS system within 24 hours of the event. EMS agencies can meet this electronic data submission requirement by using the free PreMIS Web-based data entry tool or through a commercial EMS data system which has been certified as a National EMS Information System (NEMSIS) Gold-Compliant vendor. The PreMIS system is based on the National EMS Data System standard adopted by all 56 US states and territories. Currently, 26 different commercial EMS software packages are active within North Carolina.

The EMSPIC was established by the Office of EMS (OEMS) to provide technical support and assistance to EMS agencies and systems in the use of EMS data. The Duke Endowment funded the development of five EMS performance improvement toolkits based on the NC EMS Data Systems. The toolkits address key patient types or EMS events. The EMS toolkit topics include EMS response time, acute trauma care, acute cardiac care (STEMI), acute pediatric care, and cardiac arrest care. The Centers for Disease Control and Prevention have also funded the development of an Acute Stroke Care toolkit. All six EMS performance improvement toolkits are now active with all 100 EMS systems.

In 2010, the NC OEMS and the EMSPIC focused on the linkage of EMS data with other existing NC data sources. The purpose of the linkage is to better describe, evaluate, plan, and improve the healthcare provided to the citizens of NC. At this time, NC OEMS and the EMSPIC are successfully linking EMS, emergency department, hospital discharge, trauma registry, stroke registry, STEMI registry, motor vehicle crash data, and medical examiners' data.

As of 2011, NC EMS Data System is currently exploring how EMS patient care reports could be provided to hospitals electronically, in an automated fashion, in exchange for more timely hospital outcome information. Unfortunately, EMS is not considered a part of healthcare in the federal HIT initiative and therefore is not eligible for HIT funding. The North Carolina OEMS continues to maintain and enhance all data systems pertaining to medical record collection and regulatory data. This includes, but is not limited to, inspection reports and EMS certification records through the PreMIS, CIS, and SMARTT applications. Additionally, the office will be completing the EMS Test Bank application by the end of 2011. This application allows the compilation of EMS examination questions and the ability to build EMS exams for difference certification levels based on the question pool. This will be used by members of the EMS Atlantic Council (of which North Carolina is a member) for any non-National Registry EMS exams.

A.5.11.6 State Chief Information Officer

The State Chief Information Officer (SCIO), who manages the NC Office of Information Technology Services (ITS), has two primary areas of responsibility for information technology in State government. The first area is the establishment of statewide policy and technical direction. The second is to oversee the delivery of technology services for State agencies and other subscribers.

As a policy leader, the SCIO has participated in the statewide meetings of the Health Technology Consortium and its predecessor, the Governor's Task Force on Health and Information Technology. The SCIO also provided staff to act as subject matter experts for both groups. The SCIO was also named an ex-officio member of the NC HIE, and has been participating in meetings and discussions aimed at

moving NC forward in health IT. The SCIO has also been represented in NCHICA Committee meetings, especially participating in health information exchange discussions. It is expected that the SCIO will continue to provide policy advice for a proposed non-profit corporation for health IT being established by the Office of the Governor.

In addition to the policy role, the SCIO also has an operational role. The ITS provides both mainframe and server-based hosting for State agencies and local governments; operates two large data centers, one in Raleigh and one in Forest City, NC; and provides application development services and a statewide voice and data network. In addition to the statewide network, ITS is also aligned with the work of MCNC and e-NC to provide broadband networks to rural NC.

Depending on the requirements identified by DHHS and other client agencies, ITS is poised to provide direct services for the expansion of electronic health exchanges in NC.

A.6 MEDICAID RELATIONSHIPS WITH OTHER STATE HIT/E ENTITIES

DMA plays an important role in State HIT/E activities, but relies heavily on several other partners, including the State Office of Health IT, OMMISS, the NC HIE, and others. DMA is represented on the State HIT Steering Committee and reports all HIT activities to the State HIT Coordinator, Dr. Steve Cline. Dr. Cline's position, Assistant Secretary for HIT, was created as a result of NC session law SL2009-0451, Section 10.27(b), which states that The Department of Health and Human Services shall establish and direct a HIT management structure. Membership on the DHHS Integrated HIT Steering Committee has grown to include more than 36 individuals representing 13 different agencies, internal and external to state government. All State-level partners, including DMA, provide quarterly written updates to the State HIT Coordinator's Office that fulfill the legislative requirement set forth in NC Session Law (SL) 2009-451, Section 10.27.(a) through (c), wherein DHHS must provide quarterly status reports on HIT activities resulting from the ARRA. In compliance with the Statute, a report is provided to the Senate Appropriations Committee on Health and Human Services, the House of Representatives Appropriations Subcommittee on Health and Human Services, and the Fiscal Research Division of the NC General Assembly. See **Figure 1** for a visual representation of the State's HIT organizational structure.

A.7 HEALTH INFORMATION EXCHANGE

A.7.1 NC HIE

Coordinated planning for statewide HIE in North Carolina began in early 2009, when the North Carolina HIT Strategic Planning Task Force (HIT Task Force) was established to forge a new vision of how health and healthcare can be improved by enhancing the use of health IT.

On behalf of Governor Bev Perdue, the Director of the Office of Economic Recovery and Investment (OERI) charged the HIT Task Force to engage stakeholders to develop a set of strategic guidelines by which North Carolina could apply for, and most effectively use, resources made available through ARRA. The HIT Task Force was composed of 17 members; however, more than 65 subject matter experts, staff, and members of the public were invited to participate in the seven open meetings that were held from April through June 2009.

Through a series of milestones noted in the timeline below, North Carolina rapidly organized stakeholders and launched a collaborative process to develop the strategic and operational plans to facilitate the development of the governance, technical, legal, policy, and financing infrastructure to support the expansion of interoperable HIE.

June 24, 2009: The HIT Task Force released *Improving Health and Healthcare in North Carolina by Leveraging Federal Health IT Stimulus Funds* that outlined recommendations around the critical components of a successful health IT infrastructure and operations for a statewide HIE.

July 16, 2009: Governor Perdue signed Executive Order 19, charging the North Carolina Health and Wellness Trust Fund (HWTF) Commission with the responsibility for coordinating North Carolina's HIT

efforts and creating the North Carolina HIT Collaborative to make recommendations to the Commission regarding the development of the "NC HIE Action Plan."

September 11, 2009: HWTF submitted a Letter of Intent to seek Cooperative Agreement funds on behalf of North Carolina.

October 16, 2009: HWTF submitted Cooperative Agreement Application and "NC HIE Strategic Plan.

December 9, 2009: NC HIT Collaborative Privacy Workgroup released *Briefing Paper: Developing a Statewide Consent Policy for Electronic HIE in North Carolina* which addressed issues and making recommendations for next steps.

February 12, 2010: HWTF received Notice of Grant Award from the Office of the National Coordinator for Health Information Technology (ONC) to fund HIE planning and implementation activities through 2014 and notification of approval of North Carolina State HIE Strategic Plan Version 1.

April 2010: A public-private partnership model to govern statewide HIE in North Carolina was recommended and approved; the North Carolina Health Information Exchange (NC HIE) not-for-profit organization is incorporated.

May 14, 2010: The first board meeting of the new nonprofit, public-private partnership governance entity for NC HIE is held. The NC HIE Board of Directors is comprised of 21 CEO-level executives plus ex officio members from the state. The Board is co-chaired by the NC Department of Health and Human Services (DHHS) Secretary Lanier Cansler and past CEO and Chairman of Glaxo, Inc., former CEO of Massachusetts General Hospital and healthcare advocate, Dr. Charlie Sanders.

Late May 2010: The NC HIE appointed multi-stakeholder Workgroups (Finance Workgroup, Legal and Policy Workgroup, Clinical and Technical Operations Workgroup, and Governance Workgroup) and drafts Workgroup Charters.

June 2010: NC HIE Workgroups began developing consensus-based recommendations to inform the Statewide HIE Operational Plan and to update the Statewide HIE Strategic Plan.

August 31, 2010: The NC HIE and HWTF submitted an updated Statewide HIE Strategic Plan and Operational Plan to ONC.

November 29, 2010: ONC approved North Carolina's Statewide HIE Strategic Plan and Operational Plan.

December 22, 2010: Governor Perdue issued an Executive Order appointing the NC HIE as the State Designated Entity. Management and oversight of the State HIE Cooperative Agreement was transferred from HWTF to NC HIE. The process began within ONC to transfer the Cooperative Agreement to the NC HIE.

December 2010: HWTF in partnership with NC HIE and North Carolina Community Care Network submitted a completed application for the Challenge Grant.

January 27, 2011: ONC awarded HWTF a $1.7 million Challenge Grant to deploy medication management services.

First Quarter 2011: The NC HIE workgroups continued to meet focusing on the following: The Governance Workgroup's focus shifted to their primary tasks in this phase: 1) who will participate in the Statewide HIE; 2) rules and policies for participation; and 3) enforcement and oversight. The Finance Workgroup began focusing on developing the work plan for the ongoing sustainability effort. The Clinical and Technical Operations Workgroup began their efforts by focusing on these tasks: 1) refining the requirements for core and value-added services; 2) providing input on request for proposals; and 3) helping facilitate deployment and integration of HIE services into the health system. The Legal and Policy Workgroup focused on drafting consensus legislation that would facilitate an opt-out consent model for the exchange of patient information.

April 1, 2011: ONC transferred the Cooperative Agreement to the NC HIE effective December 1, 2010.

April 25, 2011: The NC HIE released the request for proposal (RFP) for the technology service vendor to partner with the NC HIE in providing the technical services to execute the plan developed by the consensus of the wide array of healthcare interests in North Carolina. Over 30 vendors completed Letters of Interest with 17 vendor or vendor teams submitting formal proposals.

June 27, 2011: Senate Bill 375 – Facilitate Statewide Health Information Exchange passed both the House and Senate. It was signed into law by the Governor on June 27, 2011. The bill is designed to facilitate and regulate the disclosure of protected health information through the voluntary, NC Health Information Exchange (NCHIE) network.
http://www.ncga.state.nc.us/Sessions/2011/Bills/Senate/PDF/S375v0.pdf

July 27, 2011: The NC HIE filed its application for tax exempt status.

August 2, 2011: After the highly structured review of the technology service proposals, the NC HIE and the Capgemini/Orion Health consortium executed a Master Development Services Agreement and related Statement of Work. NC HIE and the Capgemini consortium are working together to deploy the HIE infrastructure and on-board participants first quarter 2012.

August 9, 2011: ONC transferred the Challenge Grant to the NC HIE.

September 28, 2011: Blue Cross and Blue Shield of North Carolina (BCBSNC), in collaboration with the North Carolina Health Information Exchange (NC HIE) and Allscripts, launched the North Carolina Program to Advance Technology for Health (NC PATH)—a program created to place North Carolina at the forefront of healthcare reform. NC PATH will equip physicians with Allscripts EHR software and support, and connect healthcare providers across the state through NC HIE. Designed to meet the needs of both physicians and patients, NC PATH will move North Carolina into a new era of quality healthcare. The NC HIE will manage the program administration and facilitation as well as support all members of the healthcare community in North Carolina regardless of their EHR technology. BCBSNC is donating the cost for the implementation of an Allscripts EHR as follows: For in-network providers, BCBSNC will cover 85 percent of the software cost, support and maintenance costs and the NC HIE connectivity and membership fee for a period of 5 years. The provider is responsible for the remaining 15 percent. For free clinics, BCBSNC will cover 100 percent of the software cost, support and maintenance costs and NC HIE connectivity and membership fee costs for a period of 5 years.

North Carolina's state government has examined the mechanisms and legal issues associated with assuring that the state retains appropriate oversight authority with respect to the statewide HIE. While it will be essential to maintain the integrity of the multi-stakeholder collaborative process in setting policy for the statewide HIE, it is also the case that the state has a non-delegable role as the steward of State assets and the protector of the public interest that must be preserved. As a result, there are specific provisions in NC HIE's Articles of Incorporation and bylaws that may not be altered, amended, or appealed without the Governor's prior approval.

As noted above, the State of North Carolina participates in NC HIE's decision-making process. Former DHHS Secretary Lanier Cansler is Chair of the NC HIE Board. In addition, Steve Cline (North Carolina State HIT Coordinator) Jerry Fralick (North Carolina Chief Information Officer), and Craigan Gray (North Carolina State Medicaid Director) are ex-officio members of NC HIE.

The State also plays a significant role in supporting the coordination of HIE efforts. In June 2010, Secretary Cansler established the North Carolina Office of Health Information Technology (OHIT) and the new position of Assistant Secretary for Health Information Technology. Led by Dr. Steve Cline, OHIT coordinates HIT efforts across state government and other key stakeholders across the state, as well as ensuring consistency with federal policy and initiatives.

Finally, through its provision, payment, and monitoring of healthcare and population health, North Carolina state government collects and distributes a wide range of administrative and clinical health information. Accordingly, state agencies are working closely with NC HIE to develop cost-effective strategies to share resources and make their systems available through NC HIE's statewide HIE network.

These deliberative processes resulted in the creation of a governance, organizational, and technical approach to statewide HIE that is described in greater detail in section B.2.

A.7.2 OTHER NC HIE INITIATIVES

Coastal Connect Health Information Exchange

In 2007, the Coastal Connect Health Information Exchange (Coastal Connect) initiative was first conceptualized by a committee of Chief Information Officers from member hospitals of Coastal Carolinas Health Alliance in Wilmington, NC. The Alliance currently represents non-profit hospitals in nine counties, seven of which are located in North Carolina and two in South Carolina, serving approximately one million residents. In 2010, CCHIE was officially incorporated. CCHIE has completed a demonstration project with Medicity and full implementation is underway. Currently five unaffiliated hospitals and over 200 unaffiliated physicians are exchanging information across the platform.

Sandhills Community Care Network

The Sandhills Community Care Network is a regional component of the NC Community Care system which provides case management services to the Carolina Access Medicaid recipients in Harnett, Hoke, Lee, Montgomery, Moore, Richmond and Scotland counties. SCCN had proposed to build on this existing foundation to establish a community health information exchange but ultimately decided to support the NC HIE and build upon the statewide model for exchange.

Western North Carolina DataLink

WNC Data Link is a regional health information exchange (HIE) that links 16 hospitals in the western portion of North Carolina. Medicaid was not involved in its formation and Medicaid does not provide data to the WNC Data Link, however WNC Data Link and Medicaid are cooperating with efforts to develop a state-wide health information exchange (NCHIE).

A.8 MMIS AND CURRENT HIT/E RELATIONSHIP WITH MITA ASSESSMENT

NC DHHS, in collaboration with the selected vendor, CSC, is currently in the design and development phase of the Replacement MMIS. The Replacement MMIS and Reporting and Analytics solution includes a data warehouse, decision support, business intelligence and fraud and abuse detection functionality. Part of the challenge for the HIT/E Project will be the ability to make modifications to the Replacement MMIS design prior to MMIS go-live to support the HIT/E environment. DHHS is also coordinating its efforts with the planned MITA transition which will result from the implementation of the Replacement MMIS.

While DMA is still in the process of developing its approach to meeting the goals of the future HIT/E environment, the plan is to maximize the use of the Replacement MMIS, the CCNC Informatics Center and the MMIS Reporting and Analytics software.

A.8.1 Coordination of HIT Plan with MITA Transition Plans

DHHS is coordinating its HIT Plan efforts with the Medicaid Information Technology Architecture (MITA) transition plans for the Replacement MMIS. Additionally, DHHS recognizes that there is a synergistic connection between the HIT Plan and the MITA “to be” assessment, which will consider the State’s goals for HIT when determining the future vision for the Medicaid and Behavioral Health Enterprises.

NC DHHS completed the MITA State Self-Assessment (SS-A) for the Medicaid Enterprise and the SS-A for the Behavioral Health Enterprise, focusing on the current and future (five and 10 years out) view of the business capabilities. MITA Framework 2.0 and 2.01 assessment tools define the capabilities for each Medicaid business process. The Substance Abuse and Mental Health Services Administration (SAMHSA) Behavioral Health MITA Version 2 assessment tools define these capabilities at a high level for Behavioral Health business processes.

The Office of MMIS Services (OMMISS) oversees the Replacement MMIS activities as well as the MITA SS-A. Division and OMMISS subject matter experts and management were consulted, as appropriate; to provide input and advice, and Division leadership was engaged to identify the future vision (over the next five and 10 years) for the Medicaid and Behavioral Health Enterprises.

The State used the SS-A process outlined in the MITA Framework 2.0 as a guide for the Medicaid assessment and performed the SS-A using the 79 MITA Version 2.01 business process templates and their associated business capability matrices. Additionally, the State developed new business processes as appropriate. The State's "as is" (current view) assessment for the Medicaid Enterprise was based upon the Replacement MMIS capabilities effective when the system goes live, as well as the new Reporting and Analytics solution, which is scheduled to be implemented simultaneously with the Replacement MMIS.

Because the Replacement MMIS is a multi-payer system which pays claims for Behavioral Health and Public Health programs in addition to Medicaid, the Behavioral Health SS-A, in addition to interviewing Behavioral Health personnel, included assessment of Replacement MMIS capabilities for Behavioral Health-only services, claims and providers and associated reporting and analytics requirements as appropriate.

To determine the future vision ("to be") for both the Medicaid and Behavioral Health Enterprises, the team engaged DHHS executive management and Division leaders to target business process and technical goals and objectives for Medicaid and Behavioral Health over the next five and 10 years. The team also used other resources for determining the department's future goals and objectives, including the MITA 2.0 Concept of Operations, the DHHS Business Plan, DHHS Strategic Plans, and approved future enhancements to the Replacement MMIS.

The output from the MITA SS-A a comprehensive report of the State's assessment, was submitted to CMS and internal stakeholders.

A.9 MEDICAID, HIE, REC AND HEALTH AND HUMAN SERVICES HIT COORDINATION

Per the SL 2009-0451 of the NC General Assembly, the NC DHHS, in cooperation with the State Chief Information Officer and the NC Office of Economic Recovery and Investment, shall coordinate HIT policies and programs within the State. The Department's goal in coordinating State HIT policies and programs shall be to avoid duplication of efforts and to ensure that each State agency and other public entity, as well as the private entity undertaking health information technology activities associated with ARRA, leverage its greatest expertise and technical capabilities in a manner that supports State and national goals. This law also directs that NC DHHS shall establish and direct an HIT management structure that is efficient and transparent and that is compatible with the ONC governance mechanism. NC DHHS was further directed to provide quarterly written reports on the status of HIT efforts to the Senate Appropriations Committee on Health and Human Services, the House of Representatives Appropriations Subcommittee on Health and Human Services, and the Fiscal Research Division.

Prior to this session bill, the Secretary of the NC DHHS formed the State HIT Steering Committee (previously HIT workgroup) referenced above, to coordinate the department's work around HIT/E. This includes coordination among the several key ARRA funding programs, the State Medicaid HIT Plan, Section 3201 Funding, the Health Information Exchange, Section 3013 Funding and the Regional Extension Center, Section 3012 Funding.

The State HIT Steering Committee includes representatives from the Division of Public Health (DPH), Division of Medical Assistance (DMA), CCNC, Office of Medicaid Management Information Services System (OMMISS), Division of Mental Health and Substance Abuse Services (DMH/DD/SAS), Division of State Operated Healthcare Facilities (DSOF), Office of Rural Health and Community Care (ORHCC), and the Office of the Secretary. Affiliated membership includes the NC HIE, the HIE Grant awardee, the Regional Extension Center (REC) grantee, the AHEC Program at the University of North Carolina, Chapel Hill, and the NC Healthcare Information and Communications Alliance (NCHICA). Additional details about the AHEC activities in support of HIE and EHR adoption can be found in *Section A.5.2,* and *Section A.10.2.*

The State HIT Steering Committee has established points of contact with key HIT agencies and organizations for the purpose of information sharing and coordination. Quarterly contact is made with these organizations and information will be included in this report as it is received.

In response to SL 2009-0451, DHHS has completed staffing the Office of the HIT Coordinator. Staff includes the HIT Coordinator, a privacy and security officer, a technical director and a full time program manager. The Office is responsible for monitoring and coordinating activities of all other State agencies and non-governmental organizations engaged with HIT and HIE activities, either of a planning, research or operational nature.

A.10 DMA AND ONC-FUNDED INITIATIVES

There is a close relationship between NC Medicaid (DMA) and the NC Office of Health IT (OHIT). Medicaid also works in tight coordination with the HIE Cooperative Grant awardee, now named NC HIE (a 501C3 organization), and with the REC grant awardee, a consortium of organizations whose lead agency is the NC Area Health Education Center (NC AHEC), operated by the University of North Carolina System.

A.10.1 DMA's relationship to the State HIT Coordinator

The SL 2009-0451 of the NC General Assembly establishes the following:

Section 10.27.(a) states:

> *The Department of Health and Human Services, in cooperation with the State Chief Information Officer and the North Carolina Office of Economic Recovery and Investment, shall coordinate health information technology (HIT).*

SL2009-0451, Section 10.27.(b) states:

> *The Department of Health and Human Services shall establish and direct a HIT management structure that is efficient and transparent and that is compatible with the Office of the National Health Coordinator for Information Technology (National Coordinator) governance mechanism.*

The NC HIT Coordinator, Dr. Steve Cline, was appointed by the Governor and established in DHHS as a direct report to the Secretary of NC DHHS. Dr. Cline facilitates collaboration between DMA, DPH, OMMIS, DMH, N3CN, ONC, NC HIE, and other HIT/E stakeholders. Dr. Cline is also responsible for ensuring that ARRA-related activities are coordinated among the various ARRA grant awardees, including several non-governmental agencies, and exploring opportunities for leveraging additional financial assistance from other (non-ARRA) federal programs.

Medicaid reports to Dr. Cline in his role as HIT Coordinator and works with his office (OHIT) to ensure the SMHP reflects the current state of HIT/E activities statewide. Medicaid also tightly coordinates its efforts for administrating the EHR Incentive Program with Dr. Cline, the REC, and NC HIE. OHIT and DMA HIT Team leadership meet bi-weekly to review program goals and discuss critical issues.

A.10.2 DMA's relationship with the Regional Extension Center (REC)

The AHEC Program serves as the North Carolina Regional Extension Center (NC REC) for health information technology. The goal is to reach at least 3,465 priority primary care physicians and assist with practice assessment, workflow redesign, selection and implementation of EHRs to achieve meaningful use of the technology and improve health outcomes throughout the State.

NC AHEC has expanded its consulting workforce to 40 EHR-experienced professionals to serve the nine regions of the State defined in its grant application. This will better enable NC AHEC to help practices implement technology and/or use their previously existing technology; thereby, meeting the federal

standards of meaningful use and administering incentive payments from the CMS between 2011 and 2015.

The Cooperative Agreement with ONC for health information technology provides payment to the NC REC upon specified milestones achieved in the practices. A training mechanism for these new staff members has been built with assistance from the REC subcontractors at the Carolinas Center for Medical Excellence (CCME), the North Carolina Medical Society Foundation (NCMSF) and the Institute of Public Health (IPH).

As of 2005, CCME possesses extensive knowledge of EHR vendors and has begun aiding practices with their EHR implementations. As part of their sub-contract, CCME is engineering a website and tracking tool to provide NC REC resources for tracking the progress of each practice through the necessary steps of readying for the selection and implementation of a certified EHR. NCMSF also leverages its expertise to help rural communities technically and financially in the effective implementation of new innovations.

IPH's primary role as a sub-contractor of the NC REC is to aid public health departments with their implementation of EHRs, and to ensure the departments meet the meaningful use standards.

NC REC understands there are several barriers to EHR adoption—especially cost—and it has developed strategies to address barriers within the small practices, such as collaborating with other small practices, group purchasing, quarterly meetings to discuss lessons learned, engaging in programs such as NC PATH, and actively participating in the building of the EHR Loan Fund.

DMA will share information with the REC by collaborating with NC AHEC. CCME is one of three REC subcontractors including NCMSF and IPH. Information exchange between DMA, CCME, NCMSF and IPH will be facilitated for DMA through AHEC. Regularly scheduled meetings between DMA and AHEC are planned to leverage outreach and educational opportunities. DMA will leverage the REC by sharing information on EP and EH enrollment statistics and trends, risks and issues and training and outreach schedules.

A.11 CURRENT INNOVATIONS – AFFECTING THE FUTURE DIRECTION OF EHRS

DMA is actively participating in the statewide effort to support the utilization of CEHRT through its membership in the DHHS HIT Steering Committee, its tight coordination with NC HIE, and by leveraging physician participation in the Community Care of NC (CCNC) medical home model. In particular, CCNC and its governance structure—North Carolina Community Care Networks, Inc. (N3CN)—are at the forefront of innovation related to meaningful use of CEHRT.

A.11.1 Community Care of North Carolina

Established in 1998, Community Care of NC (CCNC) is a partnership between NC DHHS and 14 independent community health networks across the state covering all 100 NC counties. More than 4,000 physicians work closely with CCNC's networks, to provide a primary care medical home for over 1 million NC Medicaid recipients and over 55,000 uninsured North Carolinians. CCNC networks bring local doctors, hospitals, public health departments, mental health agencies and other community providers together to improve care and save money for Medicaid and other state and local programs. Networks provide resources to practices to promote quality improvement and evidence-based care; as well as population management, care management, and pharmacy consultation services; toward the overarching aims of quality improvement and cost containment. CCNC is an award-winning, innovative program unlike any other in the US.

CCNC Quality Measurement and Feedback- Since its beginning in 1998, Community Care has used performance measurement and feedback to help meet its goals of improving the quality of care for Medicaid recipients while controlling costs. Quality measurement is intended to stimulate or facilitate quality improvement efforts in CCNC practices and local networks, and to evaluate the performance of the program as a whole. Under the direction of the Clinical Directors, this measurement and feedback process has evolved over time to meet the changing needs of the program. Several factors necessitate a

continuing need to evolve, such as 1) expansion of Community Care's enrolled population and increasing focus on aged, blind, and disabled patients with multiple chronic conditions, 2) practice participation in other quality initiatives and desire that measures be aligned as much as possible, and 3) changes to evidence-based clinical practice guidelines over time. A Quality Measurement and Performance workgroup, with representation from all fourteen (14) networks, meets periodically to review performance measures. Goals are to identify measures with: 1) clinical importance (based on disease prevalence and impact, and potential for improvement), 2) scientific soundness (strength of evidence underlying the clinical practice recommendation; evidence that the measure itself improves care; and the reliability, validity, and comprehensibility of the measure), and 3) implementation feasibility. Workgroup recommendations are presented to the CCNC network leaders, and final measures are chosen by vote of the Clinical Directors.

As of January 2009, patients are eligible for chart review on the basis of asthma, diabetes, ischemic vascular disease, and heart failure. Chart review measures pertain to: appropriate asthma management; diabetes glycemic control and foot care; management of blood pressure, cholesterol, and tobacco use; appropriate aspirin use; and assessment of LV function in heart failure. Community Care has contracted with Area Health Education Centers (AHECs) to perform independent randomized chart reviews for >26,000 recipients in >1325 CCNC practices, with an electronic data abstraction tool. Practice-level results with patient-level detail are available to the networks by secure internet reporting services on a next-day basis. Program-level results are reported annually.

An additional set of quality of care measures are derived from Medicaid claims data, pertaining to: medication therapy for asthma, heart failure, and post-MI patients; adult preventive services (breast, cervical, and colorectal cancer screening); and pediatric preventive services (dental care and well child exams). Claims measures are reported quarterly at the practice, county and network level. A "care alert" system was released in the Fall of 2010, which scans historical claims data on a weekly basis to readily identify patients in default of recommended services. Care alerts are posted within the patient record on Community Care's secure web-based Provider Portal; and as panel based reports for primary care practices providing medical home services.

A critical element to Community Care's success centers on the ability of the networks to locally implement system changes needed to improve quality in practices. The network Clinical Directors are instrumental in engaging community providers to implement the quality initiatives. Providing credible and provider friendly reports are powerful tools, particularly when accompanied with benchmarks and comparisons to peers, helping to motivate providers to improve processes that will enable them to provide best care. The focus is on implementing evidence-based best practices in the medical home.

Please see **Table 10** below for a detailed summary of CCNC Quality Measures.

Table 10 - Summary of CCNC Quality Measures, 2011

Condition	Measure	Source
Asthma	Continued Care Visit with assessment of symptoms	Chart Review
	Action Plan	Chart Review
	Assessment of environmental triggers	Chart Review
	Appropriate pharmacological therapy	Chart Review
	Suboptimal control (beta agonist overuse)	Claims Review
	Suboptimal control and absence of controller therapy	Claims Review
	Asthma ED visits per 1000 asthma member months	Claims Review
	Asthma Hospitalizations per 1000 asthma member months	Claims Review
Ischemic Vascular Disease	Aspirin use	Chart Review
	Smoking status and cessation advice	Chart Review
	BP Control <140/90	Chart Review
	Lipid Testing	Chart Review
	LDL Control	Chart Review
Hypertension	BP Control <140/90	Chart Review
	Smoking status and cessation advice	Chart Review
Diabetes	A1c testing	Chart Review
	A1c control <8.0% (good)	Chart Review
	A1c control >9.0% (poor)	Chart Review
	Lipid Management <100 mg/dL (good)	Chart Review

	Lipid Management >130 mg/dL (poor)	Chart Review
	BP Control <130/80 (good)	Chart Review
	BP Control >140/90 (poor)	Chart Review
	Foot Exam	Chart Review
	Smoking status and cessation advice	Chart Review
	A1C testing	Claims Review
	Eye Exam	Claims Review
	Cholesterol screening	Claims Review
	Nephropathy screening	Claims Review
	Use of ACE/ARB for patients with DM and HTN	Claims Review
Heart Failure	LVF documentation	Chart Review
	ACE Inhibitor/ARB Therapy	Chart Review
	Beta Blocker Therapy	Chart Review
	Smoking status and cessation advice	Chart Review
	Left ventricular function (LVF) assessment	Claims Review
	Heart Failure Admissions	Claims Review
	Heart Failure 30 day readmissions	Claims Review
Adult Preventive Services	Breast cancer screening (mammography)	Claims Review
	Cervical cancer screening (pap smear)	Claims Review
	Colorectal CA screening	Claims Review
Pediatric Preventive Services	Dental Topical Fluoride Varnishing	Claims Review

	Annual Dental Visit (ADV)	Claims Review
	EPSDT VISIT (W15) Well-child visits in the first 15 months of life	Claims Review
	EPSDT VISIT (W34) Well-child visits in the Third, Fourth, Fifth and Sixth Years of Life	Claims Review
	EPSDT VISIT (AWC) Adolescent well-care visits	Claims Review

A.11.2 North Carolina Community Care Networks, Inc. (N3CN) Informatics Center

N3CN is a non-profit entity comprised of and governed by its constituent 14 community-based CCNC networks. N3CN hosts an electronic data exchange infrastructure maintained in connection with healthcare quality initiatives for the State of North Carolina sponsored by the Department of Health and Human Services Division of Medical Assistance, Office of Rural Health and Community Care, and the United States Department of Health and Human Services Centers for Medicare & Medicaid Services. Currently, the Informatics Center contains healthcare claims data provided by Medicaid, as well as health information about program participants obtained directly from healthcare providers and care managers and/ or the primary care medical record. Additional data sources include: Medicare claims and Surescripts pharmacy data for dual eligibles in the 646 demonstration program, laboratory results from Labcorps and UNC Healthcare, and real-time hospital admission/discharge/transfer data from 48 large NC hospitals. Additional hospitals and practices will be contributing clinical data into the N3CN clinical data repository in 2012. Information is accessed by the Community Care networks and providers to identify patients in need of care coordination; to facilitate disease management, population management, and pharmacy management initiatives; to enable communication of key health information across settings of care; to monitor cost and utilization outcomes; and to monitor quality of care and provide performance feedback at the patient, practice, and network level.

All Informatics Center (IC) applications are built using Microsoft .NET technology, and available to authorized users via the Internet using a secure socket layer. User access to applications and reports is handled in several ways to insure multi-level security. With Windows Active Directory the IC manages a complex permission tree to restrict user access to the applications or reports they are entitled to see. All sites maintain audit logs of the users' access to the application and the data reviewed or comments modified. Applications and data bases reside on one of nine Dell Servers housed at a climate controlled data center in Raleigh. Storage is handled by a disk array configured with redundant storage (raid 10). Servers are owed by N3CN but reside at Hosted Solutions, a SAS 70 Type II certified data center. Hosted Solutions has secured access with 24-hour on premises staff to monitor the site. Hosted Solutions provides a redundant power supply and redundant telecommunications capabilities, complex firewalls and encrypted telecommunication lines. All servers are backed up regularly as are all application.

Informatics Center Functions and Front-End Applications

Care Management Information System (CMIS)- CMIS originated in 2001 as a Microsoft Access database in a single CCNC network, designed for care managers to make administrative and therapeutic notes. It evolved into a web-based portal accessible to all networks, allowing care managers to maintain a health record and single care plan that stays with the patient as he or she moves from one area of the state to another. With support from the Foundation for Advancement of Healthcare Programs, CCNC contracted

with an external developer to establish an import of Medicaid enrollment and claims data on a monthly basis, to populate the CMIS patient record with demographic and primary care provider information, and a view of the individual's hospital, ED, and pharmacy claims. In addition, networks were able to utilize CMIS to manage enrollment, eligibility and care management services for HealthNet projects across the state, which are regional collaboratives for the care of the uninsured, currently serving 12,500 enrolled individuals. Thus CMIS enables a continuity of care record for patients as they migrated "in and out" of Medicaid, Health Choice (North Carolina's CHIP program) and un-insurance. CMIS provides a standardized framework for care manager workflow management and documentation, incorporating tools for patient assessment, goal setting, and health coaching.

In 2009, N3CN transitioned the CMIS system within the IC environment to be sourced from the IC data warehouse. This allowed for greater developmental flexibility and the opportunity to exchange information across IC applications (for example: care management data fields may be visible through the Provider Portal, or available for reporting in the Reports Site; while chart audit reports may be retrieved within the CMIS patient record). As the CCNC Chronic Care program evolved, care management tools could readily be incorporated into the CMIS system. Important enhancements included a comprehensive health assessment and functional assessment tools, as well as disease-specific screening and monitoring modules. Bulk task capacity was added to allow for population-level interventions (for example, to send a flu shot reminder to all patients with diabetes). A secure messaging feature allowing 20 MB attachments was added to allow care managers to communicate patient health information securely to primary care providers or others involved in the patient's care outside of the CMIS system. Report-designing capacity was built within CMIS to allow managers to more closely monitor the caseload and activities of the care management workforce. In 2011, over 800 new CMIS users from local health departments statewide were given access to CMIS, to allow for a coordinated care management record for pregnant women and children with special healthcare needs receiving case management services in those settings. As of November 2011, 1,614 care managers statewide use this care management platform, working with over 100,000 patients every month.

Pharmacy Home- The Pharmacy Home Project was created to support CCNC pharmacy management initiatives, and addresses the need for aggregating information on drug use and translating it to the network pharmacist, case manager and primary care provider in a manner best suiting their care delivery needs. To accomplish this charge, N3CN initially set up a monthly extract of pharmacy claims history from the DRIVE system to be warehoused within our own CCNC environment. Extraction, Transformation, and Load (ETL) processes were written to prepare data and load it into the application database from which prepared data could be readily pulled into front-end views of patient prescription history or user-generated population-level reports. In addition, ETL processes applied logic to create derived variables indicating adherence calculations, gaps in therapy (days elapsed since the most recently dispensed pill supply would have expired), and other clinical care alerts (e.g. indicator of beta agonist overuse, which may indicate poor asthma control). From the application database, the system was set up to provide a patient level profile and medication history for point-of-care activities, as well as a population-based reports system to identify patients that may benefit from pharmaceutical care delivery via pharmacists, case managers and PCPs in the medical home. The Pharmacy Home drug use information database is used prospectively for multiple purposes: for medication reconciliation; identification of care gaps and problem alerts; targeting of at-risk patients; development of the pharmaceutical care plan; and proactive intervention to assist providers and patients with therapeutic substitution required by state Medicaid policy. Retrospective uses of the Pharmacy Home database are equally important, to enable efficient and timely analyses needed for continuous quality improvement and program evaluation.

N3CN is a sub-awardee of a Challenge Grant from the Office of the National Coordinator for Information Technology to build on N3CN's existing Pharmacy Home application. Under this grant, the North Carolina Health Information Exchange will charge N3CN with enhancing the existing "Pharmacy Home" application to connect it to the NC HIE as a value added service to encompass all payers and providers. By project completion, the NC HIE will be the primary inbound source of the disparate medication lists from multiple settings and systems to the application, as well as the conduit for outbound communication with NC HIE participants, including a provider's own electronic system of record. The Pharmacy Home will then act as a node on the NC HIE to provide a "common view" of all available medication lists. This

enhance set of aggregated information will greatly enable medication reconciliation efforts and also enable more valid decision support.

Quality Measurement and Feedback Chart Review System- Chart audit, quality measurement and performance feedback has always been an integral component of CCNC's clinical quality improvement initiatives. Despite rapid growth in CCNC enrollment and number of participating practices, CCNC clinical leaders have remained committed to the monitoring of quality at the individual practice level, to engage providers in the quality improvement process and to monitor progress at the practice, county, network, and statewide level. As the CCNC program expanded to serve a larger population with multiple complex comorbidities, a broader array of quality measures was adopted, based on evidence-based care guidelines for diabetes, asthma, hypertension, cardiovascular disease, and heart failure. N3CN now conducts over 26,000 medical record reviews in over 1250 primary care practices statewide on an annual basis. To manage the expanding scope of the chart review process, N3CN moved from a paper chart abstraction tool to a fully electronic, streamlined system in 2009. Medicaid claims data is used to generate a random sample of eligible patients, and to pre-populate audit tool elements according to an individual's identified chronic conditions (Figure 6). Secure client-server software allows independent auditors to work offline when Internet access is not available in the clinic location. When access to Internet is available, the system automatically synchronizes data with the server. Data is fully encrypted offline and in transit. Data sent to the server automatically updates a variety of process, progress, and analysis web-based reports. Practices and CCNC networks then have immediate access to chart review results through a secure web-based report site, with patient-level information as well as practice, county, network, and statewide results with national comparative benchmarks.

Informatics Center Reports Site- The IC Reports Site was created to allow the efficient and secure distribution of reports through a secured web-based report access and management application, with report access permissions determined by the appropriate scope of access of individual users. Network-level administrators authorize their own employees and providers by customizing their scope of access by practice or region. A report built at the statewide level can be readily distributed according to the permission tree structure, such that only the appropriate patient information is visible to each end user.

Initially, most reports distributed through the Reports Site were created by data analyst staff querying the DRIVE or IC data warehouse using SAS, to create an underlying data table for the specific report. IC could then create a web-based report in RDL (report definition language – Microsoft standard format for web-based reports) format, pointing to the data in that underlying data table. Publishing the RDL reports through the Report Publisher (a custom-made Windows-based application) would then automate the process of separating the data and publishing report instances customized to networks, regions, and practices according to the permission tree. Over time, the report code is being translated into SQL and ETL processes are being established to allow extracting data directly from the IC data warehouse and loading it into the reports underlying data tables. All reports are printable and can be exported into pdf or Excel format. In 2011, N3CN expanded its reporting capacity to provide secure analytics and reporting services for local health departments and for Local Management Entities who provided population management services for the behavioral health population.

Various functions are served by N3CN's analytics and reporting capacity, including:

> ***Population Needs Assessment: Identification of demographic, cost, utilization, and disease prevalence patterns by service area.*** The CCNC Chronic Care patient database is updated quarterly to reflect the current aged, blind, and disabled Medicaid-enrolled population, containing over 80 data elements. Network leaders can readily obtain information about the demographic characteristics, prevalence of chronic medical and mental health conditions, spending by category of service, and rates of hospital, ED, and other service use within their county-level service areas. This aids in program planning and resource allocation; identification of outlier patterns (such as unusually high rates of personal care services); and tracking of local utilization patterns over time.
>
> ***Risk Stratification, Identification of High-Opportunity Patients, Patient-level Information***. The size and complexity of the Medicaid population, in terms of physical health, mental health, and socioeconomic needs, necessitates intelligent mechanisms for identifying patients most

appropriate for care management interventions, particularly in the face of limited resources. The use of historical claims data to screen patients for care management intervention can greatly improve the efficiency of the care team. N3CN provides networks and primary care medical homes with an enrolled patient database, updated quarterly, containing over 90 data elements related to cost, utilization, and diagnoses, and risk profile. A comprehensive patient-level view of this information is available in a searchable Chronic Care patient snapshot database, which facilitates triage when referrals are made for care management by providers or at the time of hospital discharge. Similar reports are generated for specific initiatives or pilot programs (for example: identification of patients with newly diagnosed asthma, heart failure, and diabetes; identification of patients receiving controlled substance prescriptions from multiple sources; identification of patients with poor adherence to their blood pressure medications for a telephonic health coaching intervention).

Within that database, patients can be flagged who meet specified criteria for further screening by a care manager, according to patterns of service use over the prior 12 months. Clinical Risk Group (CRG)-risk adjusted analytics are applied to improve the accuracy of monitoring cost and utilization metrics over time, and to improve efficiencies in identifying patients most appropriate for care management services. 3M-developed methodologies are used to identify potentially preventable hospital admissions, readmissions, ED use, and ancillary services, to more accurately identify patients and areas where costs and utilization are higher than expected, accounting for patient acuity. Network care managers are alerted to these patients to implement targeted interventions. In addition, we flag patients within this priority population who meet criteria for mental health case management, and other high-risk individuals appropriate for specific initiatives or programs under the auspices of partner agencies, in order to best leverage external case management resources and coordinate care.

Monitoring of ED and Inpatient Visits. A number of detailed utilization reports are generated automatically from the IC data warehouse, updating with every claims payment cycle. These can be easily navigated by local managers and clinicians who may not be highly technically savvy. As an example, the user can readily access a listing of ED visits by their enrolled population. The report can be parameterized by hospital, PCP, or patient or visit characteristics; and can tally visit counts by patient or practice. A similar report is available for inpatient hospitalizations. These reports are very flexible for answering a variety of questions (e.g., Are patients from my clinic having a high number of non-emergent ED visits during regular office hours? How many heart failure discharges were readmitted within 30 days, and did they bounce back to the same facility or a different location?); and for identifying at-risk patients in a timely fashion (e.g., here is a list of all patients with an asthma-related ED visit, let's make sure they have a follow-up PCP visit scheduled).

Additionally, through the joint efforts of CCNC, NC DHHS, and the NC Hospital Association, N3CN is now receiving twice-daily notification of Medicaid population inpatient and ED visits from 48 NC hospitals, with additional hospitals in development. This real-time notification greatly facilitates the identification of patients in need of care management support as they transition from hospital to home, including pharmacist review of medications and follow-up in the primary care medical home.

Tracking of Care Quality Indicators. In addition to the quality measures tracked in the annual chart review process, N3CN is able to track a number of quality measures using claims data alone, with quarterly updates. Measures can be aggregated to the practice, county, network, or statewide level. Results can be viewed in spreadsheet format for easy comparative view across practices, or as a comprehensive practice-level, county-level, network-level, or program-level report with trend information. Reports include measures related to diabetes, asthma, heart failure, cardiovascular disease, pediatric well visits and dental care, and adult breast, cervical, and colorectal cancer screening.

Program Evaluation and Tracking of Key Performance Indicators. The IC Reports Site also enables program performance tracking for monthly reporting to the state Medicaid agency and state legislature. Tracking of key metrics provides stakeholders with assurance that efforts are

aligned toward the overarching goals of cost savings and quality improvement, and that all networks are held accountable for the overall performance of the program. Key indicators include both process measures (such as percent of targeted hospitalized patients receiving medication reconciliation) and outcome measures (such as hospitalization, ED, and readmission rates).

A.11.3 Community Care of North Carolina (CCNC) Provider Portal

The Informatics Center Provider Portal was released in August of 2010. This portal was built with the treating provider in mind, offering elements of CMIS, Pharmacy Home, and the Reports Site, tailored to the target user. Through a secure web portal, treating providers in the primary care medical home, hospital, emergency room, or mental health system can access a Medicaid patient health record which includes patient information, care team contact information, visit history, pharmacy claims history, and clinical care alerts. Importantly, the use of Medicaid claims data provides key information typically unavailable within the provider chart or electronic health record. For example, providers are able to see encounter information (hospitalizations, ED visits, primary care and specialist visits, laboratory and imaging) that occurred outside of their local clinic or health system. Contact information for the patient's case manager, pharmacy, mental health therapy provider, durable medical equipment supplier, home health or personal care service provider is readily available. Providers can discern whether prior prescriptions were ever filled, and what medications have been prescribed for the patient by others. Built-in clinical alerts appear if the claims history indicates patient may be overdue for recommended care (e.g., diabetes eye exam, mammography).

The Provider Portal also contains key resources for assisting providers in the management of Medicaid patients, such as a compendium of low-literacy patient education materials, and practice tools for risk assessment and disease management. Through a seamless link into a licensed service maintained by an outside partner, providers can retrieve medication information for patients in multiple languages, in video or print format. Medical home providers may directly access population management reports and quality metrics for their own patient population through a seamless link into the Informatics Center Reports Site.

As of November 2011, 1,713 providers were using this Portal, accessing information for over 25,000 patients per month.

A.12 STATE LAW AND REGULATORY CHANGES TO SUPPORT THE EHR INCENTIVE PROGRAM

A close review of North Carolina state statutes that affect healthcare providers' disclosure of patient information found a number of laws that were outdated, ambiguous, and out of alignment with the federal HIPAA Privacy Rule. In an effort to harmonize NC state laws with HIPAA and to facilitate the use of secure electronic exchange of patient information in a manner consistent with HIPAA, the 2011 General Assembly enacted two bills, SB 375 and SB 607. SB 375, establishes the "North Carolina Health Information Exchange Act", which is codified in Article 29A of Chapter 90 of the NC General Statutes. The Act regulates the use of the voluntary statewide HIE Network in a manner consistent with HIPAA Privacy and Security Rule. SB 607 made conforming changes to specific sections of existing North Carolina law that were identified as barriers to meaningful use of electronic health information exchange..

A.13 HIT ACTIVITIES CROSSING STATE BORDERS

North Carolina borders four states: Virginia, Tennessee, Georgia, and South Carolina. It shares significant medical trading areas on the borders of Virginia and South Carolina. As North Carolina develops its health data exchange policies and technical services, it is considering alignment opportunities with neighboring states driven by:

- Data exchanges that naturally flow across state borders;
- Opportunities for shared HIE infrastructure design and development;
- Cross-border provider Medicaid incentive determinations; and

- Approaches to provider adoption of EHRs.

North Carolina partners with other states around HIT/E, including:

- In April 2010, the States of Tennessee and Alabama formed the Southeast Regional Health IT-HIE Collaboration ("SERCH") to serve as a forum for discussion among bordering states. Along with Alabama and North Carolina, participation includes Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, South Carolina, Tennessee, and Virginia. Through SERCH, representatives from each state's Medicaid Agency, State Health IT Offices, and RECs participate in weekly conference calls to discuss topics which the group determines to be of critical importance for advancing HIE and healthcare IT.

- In June 2010, North Carolina participated in a multi-state collaborative (Alabama, California, Colorado, Georgia, Maine, Missouri, New York, North Carolina, South Carolina, and Tennessee) that developed and released an RFI from vendors regarding enterprise medication management services.

- North Carolina is a member of the Statewide HIE Coalition.

- Through NCHICA, North Carolina has also participated in Health Information Security and Privacy Collaborative and NHIN activities.

- NC DMA participates in several e-communities of practice, including several related to administration of the HER Incentive Program.

The State Health IT Coordinator serves as the main point of collaboration between North Carolina and its neighboring states. Dr. Cline has shared contact information for HIT Teams between states.

A.14 INTEROPERABILITY STATUS OF THE STATE IMMUNIZATION REGISTRY AND PUBLIC HEALTH SURVEILLANCE REPORTING DATABASE

The NC Immunization Registry (NCIR) is currently available to entities across the State as a direct data entry system and is widely utilized. It records patient history of all required childhood immunizations entered into the system at the healthcare provider level and assists the provider in making clinical decisions regarding necessary treatment. However, to help with adoption of EHR technology, the NCIR must be enhanced to exchange information with certified EHR systems. The NCHIE is both technically and logically well suited to support the interoperability goals of the NCIR system with certified EHRs. The Immunization Registry intends to leverage the NCHIE to attain the goals of interacting with as many EHR systems as possible. The technical infrastructure has been funded; however, labor resources to implement the interfaces will require additional funding.

- NCIR to the NCHIE to serve as a message hub for future interfaces, such as:
    - NCIR to/from Private Provider EHR systems
    - NCIR to Medicaid's CCNC Informatics Center
    - NCIR to/from other entities, an example might be Local Education Agencies
    - NCIR to WIC

Within NC Public Health there are PH Surveillance databases that are utilized to meet disease management, containment and reporting requirements. These systems and their supporting systems are described below.

NC Electronic Disease Surveillance System (NC EDSS) - Disease surveillance, disease outbreak/case management and early detection system that allows public health analysts to receive, manage, process and analyze electronic data from public health entities and laboratories. Services include support for

required case or suspect case reporting of reportable diseases, electronic lab reporting, and outbreak management. The current interface status of NC EDSS is:

- NC EDSS from StarLims - functioning ELR for by law reporting only
- NC EDSS to CDC - functioning
- NC EDSS from Labcorp - functioning ELR for by law reporting only
- NC EDSS from provider labs - planned/progress limited by state capacity and resources.
- DPH is currently working on point-to-point interfaces with hospital systems. One large system has completed all message testing and has been sending live production data from 13 of their facilities (all on the same LIMS) to the NCEDSS test environment for over a month. User testing will begin in January.
- NC EDSS from hospital labs - limited planned ELR pilot with NC Hospital Exchange (NCHEX). DPH not funded for deployment or expansion to non-reportable data. Pilot has not started because of delays on the part of NCHEX.
- NC EDSS from Local Health Departments' HIS - planned and funded on HIS side only for reportable diseases. HIS will not pursue this interface.
- NC EDSS from Local Health Department (batch mode for reportable diseases only) – no expansion planned or funded
- NC EDSS from VR deaths and OCME- not planned or funded

NC Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT) - addresses the need for early event detection and timely public health surveillance in North Carolina using a variety of secondary data sources like emergency departments, poison control centers, pre-hospital medical information and NC College of Veterinary Medicine.

StarLims - State Laboratory Information System for State Laboratory testing

Health Information System (HIS) - System replaced the functionality of the Health Services Information System (HSIS) that was operational from 1983 until 2010. The HIS provides an automated means of capturing, monitoring, reporting, and billing services provided in local health departments, Children's Developmental Service Agencies (CDSAs), the State Laboratory for Public Health and Environmental Lead Investigations by State staff in the Environmental Health Section. The HIS allows for the submission of claims to Medicaid and the reporting of all services delivered from local vendor software systems via a common layout and interface.

Vital Records - System for recording Births, Deaths, Adoption and billing of services. In October 2010 North Carolina implemented an automated electronic birth records system.

The first planned public health reporting component for MU is the NC Immunization Registry (NCIR). The NCIR is jointly funded through CDC, Maternal and Child Health state and federal funds, and most recently the I-APD funds to build the interface with the CCNC Informatics Center via the NCHIE as a message hub. Additional funding requirements and strategy for further system integration will be addressed in a future update to the SMHP.

B NORTH CAROLINA'S "TO BE" VISION HIT LANDSCAPE

The North Carolina Department of Health and Human Services is committed to the meaningful use of certified EHR technologies in order to improve the quality, safety, efficiency and effectiveness of healthcare. In this section of the Plan, the "To-Be" landscape for HIT is addressed. Specifically, the plan defines a five year vision along three commitments:

- Expanding the exchange of health information
- Accelerating the adoption of certified EHR technologies
- Leveraging the CIC technical capabilities to support the adoption of EHR, quality reporting, care improvement initiatives and care coordination

B.1 FIVE YEAR VISION

North Carolina Medicaid's vision for HIT aligns with the broad vision for HIT and HIE defined by the North Carolina HIE, a North Carolina nonprofit corporation responsible for coordinating and executing a strategy for enabling statewide health information exchange in North Carolina. As outlined in the North Carolina HIE Operational Plan, the North Carolina HIE will provide:

> *A secure, sustainable technology infrastructure to support the real time exchange of health information to improve medical decision-making and the coordination of care to improve health outcomes and control healthcare costs for all residents of North Carolina.*

In support of this vision, North Carolina expects to achieve the following measureable outcomes by January 2015:

1. 100 percent of eligible professionals and hospitals will have access to HIE services required to achieve the meaningful use of certified EHR technologies,
2. NC HIE plans to launch the secure exchange of patient information between and among participating entities through the HIE Network during first quarter of 2012.
3. 85 percent of eligible professionals and more than 70 percent of the eligible hospitals who serve Medicaid recipients will be meaningful users of certified EHR technologies, and
4. As of February 13, 2012, 531 EPs and 21 EHs have been paid a total of $29,099,391 in incentive payments.

B.2 LOOKING FORWARD FOR HIE

Statewide HIE Governance and Organizational Approach

Statewide HIE in North Carolina will involve multiple organizations acting in concert. To ensure information is exchanged in an accurate, secure, and timely manner, NC HIE is leading an effort to create a high-value HIE network and set of shared HIE services that builds upon, enhances and amplifies existing capabilities and investments in HIT. Key components of North Carolina's statewide HIE landscape include:

- ***State of North Carolina***: North Carolina state government, including DMA and the Division of Public Health, plays critical roles in the leadership, oversight, coordination, and implementation of HIE. North Carolina's Office of Health Information Technology coordinates state agencies' HIT and HIE design, development and deployment efforts.

- ***NC HIE***: NC HIE's mission is provide a set of secure, scalable health information exchange services that promotes the access, exchange and analysis of healthcare information and enables participating providers and organizations to: improve health care decision-making, management and coordination of care; improve health outcomes; and control healthcare costs. Representing a wide range of stakeholders in a public-private partnership, NC HIE continues to support an open and transparent, collaborative process to develop the legal, policy and technical infrastructure to accelerate the use of HIE services.

- ***Statewide Policy Guidance***: Statewide Policy Guidance (SPG) will provide a common and consistent technical, privacy, security, and legal framework for participants in HIE and to ensure the secure, interoperable exchange of data. It typically includes: (1) detailed rules for privacy and security, technical interoperability, and financial obligations; (2) vendor contract requirements; (3) ongoing governance structure and participation; and (4) enforcement mechanisms.

- ***Qualified Organizations***: Qualified Organizations are entities designated by NC HIE to contract with health care providers and other entities on NC HIE's behalf to facilitate participation in the HIE Network. Qualified Organizations meet established criteria, have gone through an approval process, and have signed agreements to abide by the SPG.

- ***End User***: A provider or other authorized user that accesses NC HIE services.

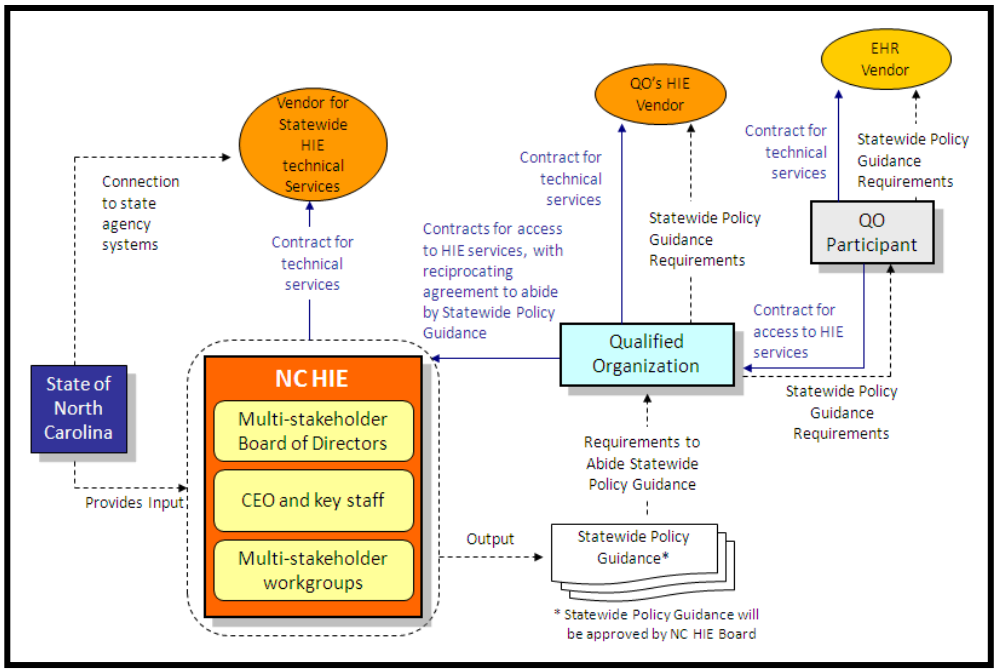

Figure 2 - Key entities and relationships in North Carolina's Statewide HIE Approach

Participation in the statewide HIE network, and access to core and value-added services, will be accomplished through Qualified Organizations. A Qualified Organization is a healthcare organization or aggregator of organizations capable of:

- Aggregating providers for purposes of connectivity to the Statewide HIE network;
- Adherence to statewide policy guidance
- Fulfillment of technical, legal, policy, and procedural obligations as defined by the Statewide HIE; and
- Entrance into a binding contract with the statewide HIE

Qualified Organizations may be a variety of organizations or networks that have relationships with, or provide services to, providers. Potential Qualified Organizations may be, but are not limited to:

- Provider Networks
  - Consortia of providers
  - Federally qualified health centers (FQHCs)
  - Health systems
  - Hospitals
  - Integrated delivery networks (IDNs)
  - Provider groups
  - Local public health departments or public health organizations
  - Rural health centers (RHCs)
- Regional Health Information Organizations
- Private, Non-Provider Networks
  - Clearinghouses
  - Laboratories
  - Pharmacies
  - Vendors
- Payers including North Carolina Medicaid and private insurers

NC HIE will create and oversee a structured accreditation process to ensure that potential Qualified Organizations are capable of fulfilling the technical and policy requirements associated with participation in the Statewide HIE network.

While participation in the Statewide HIE will be voluntary, must sign a contract or participation agreement with the NC HIE, binding it to compliance with the Statewide HIE's Participation Agreement and NC HIE Privacy and Security Policies. There will also be a process and policies established to ensure ongoing oversight of participating entities to ensure compliance with NC HIE's privacy and security framework.. If a participating provider is identified as noncompliant with the Statewide HIE's requirements as described in its contract, the entities' access to the HIE Network may be terminated.

Accountability and transparency will be central to ensuring the success of statewide HIE and encouraging provider participation. Qualified Organizations will be expected to execute similar participation agreements and contracts with its members, binding those members to requirements for all statewide HIE members.

B.2.1 Statewide HIE Technical Approach

As described in the State HIE Strategic and Operational Plans and currently being implemented by NC HIE and its partners, North Carolina's statewide HIE technical infrastructure framework consists of three categories of services: core, value-added, and support.

Core Services

Core Services support connectivity and data transport between multiple entities and systems. The goal is to provide a lightweight and flexible infrastructure and serve as gateway to access Value-Added Services.

Core Services create a foundation to exchange health information across organizational boundaries, such that two entities can:

- Identify and locate each other in a manner they both trust;
- Reconcile the identity of the individual patient to whom the information pertains;
- Exchange information in a secure manner that supports both authorization decisions and the appropriate logging of transactions; and

Measure and monitor the system for reliability, performance and service levels.

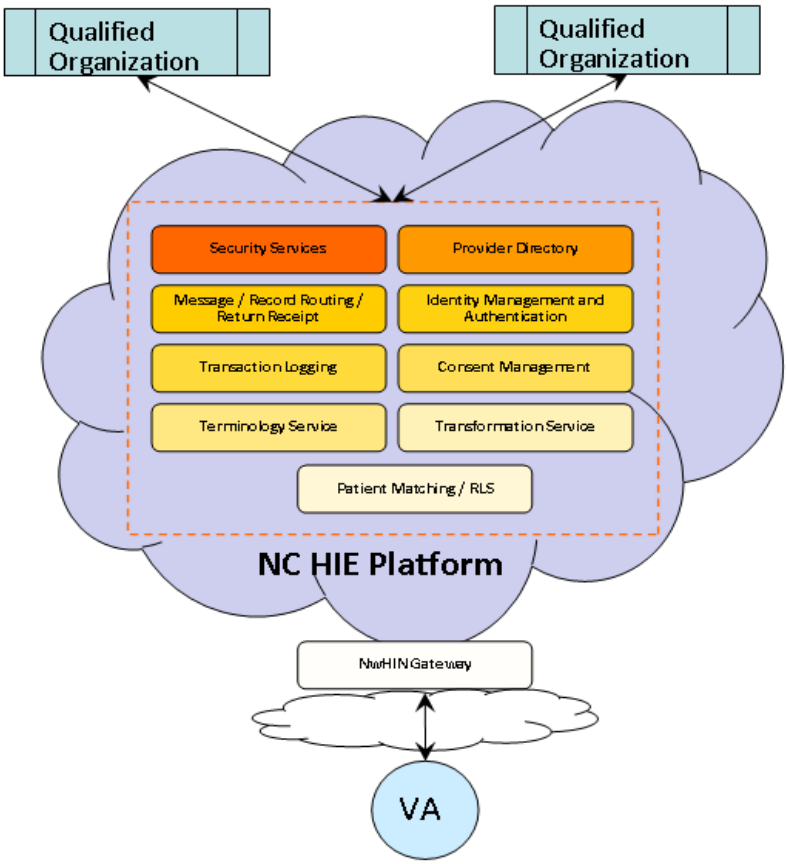

Figure 3 - Illustration of relationship between entities and the statewide HIE platform

NC HIE's core HIE services consist of the following components.

1. ***Security Services***: Multiple functional processes that ensure only authorized users access system or service resources. Processes must adhere to state and federal privacy and security standards. Access begins with a secure Web interface that conforms to security design standards. A consistent audit trail will be established across components.
    - Provider Directory: Includes services for locating providers by facility location and unique identifier; may include interdependent master facilities and master clinician indices.
    - Master Facilities Index: Index of facilities with which the clinician (or other user) has an affiliation/relationship. It processes additions, deletions, and updates to the facility index and

processes requests for information from facilities index.

2. ***Master Clinician Index***: An index containing all relevant information on all registered clinicians within North Carolina. It will be an open and authoritative state level provider directory accessible to all QOs in the state.

3. ***Message / Record Routing / Return Receipt***: Enables participating providers to securely exchange key clinical information between their EHR systems (e.g., accept and route continuity of care documents (CCDs) between connected providers).

4. ***Identity Management and Authentication***: Authentication is frequently handled through digital certificates that prove to the HIE that the systems are trusted sources. Services will include an index of participating entities (or QOs) and storage of participating entity rules (based on data sharing agreements) in order to enable sharing of clinical records.

5. ***Transaction Logging***: Maintains a transaction log that can facilitate audit activities. The transaction log will track the origination and destination of an information transaction and verify that the transaction was completed.

6. ***Consent Management***: Facilitates consent policies and patient preferences. NC HIE's technology partner will be expected to provide capability to facilitate consent policies for multiple consent models. NC HIE will also require the ability to provide system wide capability to restrict access to specially-protected data according to state and federal law.

7. ***Terminology Services***: Capability to provide translation between various medical vocabularies in clinical records, to provide LOINC encoding for lab results according to HHS standards, and in later phases, to provide mappings and encodings for all meaningful use standards.

8. ***Transformation Service***: Capability to provide transformation between different document formats (e.g., HL7v2 to v3 or EDI to XML), to parse and validate various document formats (e.g., XML and XSD), and to create and map across different message envelopes and content requirements.

9. ***Patient Matching/Record Locator Service***: The service provides three capabilities:

    - Reconciliation service that matches (i.e., cleans up) records from existing systems to provide a definitive mechanism to locate all records for a patient.

    - Enables requesting a list of patient information documents or clinical data locations using this index, either via a demographic attribute query or a direct index lookup.

    - Enables requesting one or more of the documents listed from a query be transferred to the requester's system.

10. ***NwHIN Gateway***: Provides for a single statewide implementation of the NwHIN Connect gateway available as a web service for authorized users and entities.

In addition to these infrastructural components, NC HIE's deployment of core services will include: (1) normalization of laboratory results; (2) transmission of CCD among participating entities; and (3) deployment of services in support of secure messaging using the Direct implementation specification.

Value-Added Services

Accessible via core services, value-added services serve as the tools and applications that allow end users the functionality to improve the safety, efficiency, quality, effectiveness of care. In developing its RFP for HIE services, NC HIE conducted a thorough and rigorous assessment of candidate value-added

services across the dimensions of cost, feasibility, value to stakeholder groups, applicability to Meaningful Use, and appropriateness of delivery at the state level.

Based on the results of this assessment, NC HIE identified and prioritized value-added services that will be incrementally deployed as follows:

- ***Phase 1A (January-April 2012)***: NC HIE will deploy services to: (1) automate access to North Carolina's Immunization Registry; (2) support Medication Management; (3) deliver laboratory results; and (4) provide practice analytics
- ***Phase 1B (April-July 2012)***: NC HIE will deploy services to: (1) deliver radiology results; (2) exchange data for quality reporting; and (3) delivering procedure results
- ***In Phase 2 (July-December 2012)***: NC HIE will deploy the following value-added services: (1) delivery of radiology images, (2) syndromic surveillance, (3) consumer access, (4) public health, (5) clinical decision support, (6) CCD translation, and (7) laboratory orders.

An illustration of the proposed phasing of value-added services is provided below.

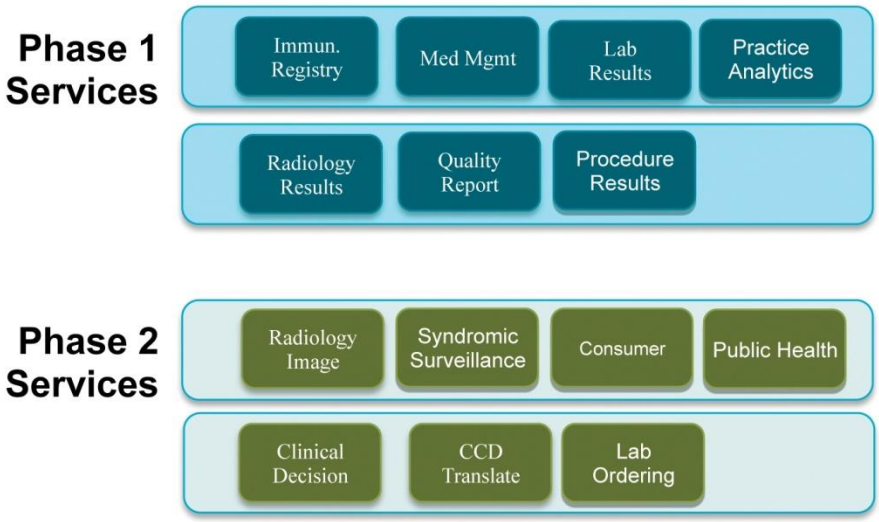

Figure 4 - Phased implementation of value-added HIE services

Supporting Services

Supporting services include the functions needed to maintain the technical operations and include:

- ***Systems Environments***: Ability to maintain appropriate environments for development, testing, training, and production.
- ***Hosting Services***: Technical infrastructure and services needed to run, maintain, and support service delivery.
- ***Training***: Training of end users and administrators within NC HIE and each QO.
- ***Help Desk***: Hardware and network support and maintenance.

B.2.2 Risks and Mitigation Strategies

DMA will manage risk through direct engagement with NC HIE and rigorous oversight, and monitoring. DMA's contract with NC HIE for creation of core services will include a detailed statement of work with funding tied to quarterly implementation milestones. NC HIE will be required to provide quarterly updates on technical developments and the number of Qualified Organizations and participants who have access to core HIE services and the volume of utilization.

Table 11 - Risk Analysis

Description of Risk	Probability	Impact	Prevention/Mitigation Strategy
NC HIE fails to deploy components of core technical services	Moderate	High	DMA will structure its contract with NC HIE for core technology licenses in multiple parts to ensure system operates as functions prior to the release of additional payments. Consistent with industry best practice and agile development processes, NC HIE's will release functionality in discrete increments that will: (1) improve the ability for NC HIE to manage project risk and (2) provide stakeholders the opportunity to revalidate their needs and requirements.
NC HIE's on boarding of Qualified Organizations is slower than anticipated	Moderate	Moderate	DMA's contract with NC HIE will tie payments are to achievement of on boarding milestones. Learning from the implementation experiences of other statewide HIE efforts, NC HIE has dedicated resource to assess stakeholder needs, communicate the value of participation in statewide HIE, and support the on boarding needs through the availability of training and support services. To help accelerate the on boarding of eligible professionals and hospitals, DMA will leverage its Medicaid EHR Incentive Program communications to market the benefits of connecting to the statewide HIE network.
Focus of core services shifts away from meeting Meaningful Use criteria	Low	Moderate	The state's direct involvement in the leadership and decision-making of NC HIE ensures that the HIE continues to focus and prioritize the needs of entities meeting the existing and future HIE requirements for the Meaningful Use program.

Description of Risk	Probability	Impact	Prevention/Mitigation Strategy
Subsequent stages of Meaningful Use create new requirements that aren't addressed by NC HIE's core services	High	Low	NC HIE's modular design and strategy to add value-added services incrementally based on market demand will provide a pathway to address future requirements. DMA will work through NC HIE's technical workgroup to ensure the latest MU requirements are considered in prioritization for system expansion.

As part of its obligations to oversee funding from ONC's State HIE Cooperative Agreement, NC HIE has developed a risk mitigation strategy built on four principles: sharing risks, reducing the size of activities, simplifying our solutions and operations, and leveraging relationships. NC HIE manages risks by domains: Resource, Delivery, and Market.

NC HIE's risk mitigation strategies for the three domains of implementation are illustrated in **Figure 5**.

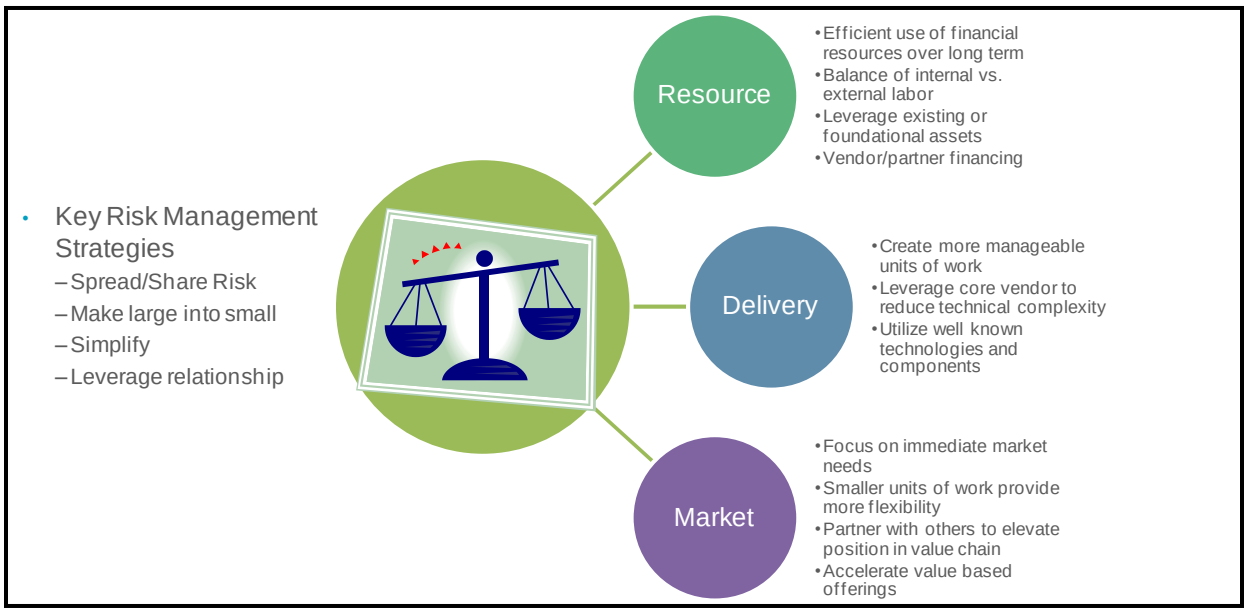

Figure 5 - NC HIE's risk mitigation strategies for statewide HIE Deployment

B.2.3 Annual Benchmarks and Performance Goals

Table 12 - Annual Benchmarks and Performance Goals for the Statewide HIE Core Services

Performance Goal	Metric	2012 Goal	2013 Goal	2014 Goal	2015 Goal	2016 Goal
Deploy core infrastructure components	Successfully test and acceptance of components	Complete test and acceptance				

Expand connectivity to core services	Total # of Qualified Orgs connected to core services	8	14	19	21	23
	Total # of hospitals connected to core services	40	98	106	110	134
	Total # of physicians connected to core services	6,046	9,996	14,403	17,462	21,799

B.2.4 Link to Meaningful Use Strategy

In October 2010, NC HIE's Clinical and Technical Operations Workgroup evaluated the ability for NC HIE and the private market to support providers' ability to meet current and anticipated requirements of meaningful use.

Table 13 - Core HIE Services and Stage 1 Meaningful Use Criteria.[3]

MU Stage 1 Objectives		MU Set	Role of NC HIE's Core Services
Eligible Professionals	**Eligible Hospitals**	**Core/Menu**	
Generate and transmit **permissible prescriptions electronically (eRx)**	*Not applicable*	Core	Not applicable; functionality addressed via HIE services not sponsored or hosted by NC HIE
Incorporate **clinical lab-test** results into EHR as structured data	Incorporate **clinical lab-test** results into EHR as structured data	Menu	NC HIE's deployment of core services will include laboratory normalization functions that will facilitate the interoperable exchange of clinical lab-test results
Report ambulatory quality measures to CMS or the States	**Report hospital quality measures** to CMS or the States	Core	To be addressed by service provisioned by CCNC

[3] Please note that NC HIE will continue to identify and incrementally deploy additional value-added services and work with stakeholders to facilitate activities that increase providers' ability to meet existing and future Meaningful Use requirements.

MU Stage 1 Objectives		MU Set	Role of NC HIE's Core Services
Eligible Professionals	**Eligible Hospitals**	**Core/Menu**	
Capability to exchange **key clinical information** (for example, problem list, medication list, allergies, diagnostic test results), among providers of care and patient authorized entities electronically	Capability to exchange key clinical information (for example, discharge summary, procedures, problem list, medication list, allergies, diagnostic test results), among providers of care and patient authorized entities electronically	Core	Core Services will enable authorized users on the statewide HIE network to search for, transmit, and receive summary care records
The EP, EH or CAH who transitions their patient to another setting of care or provider of care or refers their patient to another provider of care should **provide summary of care record for each transition of care or referral**	The EP, EH or CAH who transitions their patient to another setting of care or provider of care or refers their patient to another provider of care should **provide summary of care record for each transition of care or referral**	Menu	Core Services will enable authorized users on the statewide HIE network to search for, transmit, and receive summary care records
Capability to **submit electronic data to immunization registries or Immunization Information Systems** and actual submission in accordance with applicable law and practice	Capability to **submit electronic data to immunization registries or Immunization Information Systems** and actual submission in accordance with applicable law and practice	Menu	To be addressed by service provisioned by CCNC
Not applicable	Capability to submit electronic data on **reportable (as required by state or local law) lab results** to public health agencies and actual submission in accordance with applicable law and practice	Menu	To be addressed by NC HIE Participant Service in subsequent deployment of value-added services
Capability to **submit electronic syndromic surveillance data** to public health agencies and actual submission in accordance with applicable law and practice	Capability to **submit electronic syndromic surveillance data** to public health agencies and actual submission in accordance with applicable law and practice	Menu	To be addressed by NC HIE Participant Service in subsequent deployment of value-added services

B.2.5 Clinical Quality Measures and Public Health Interfaces

As stated above, DMA plans to expand the IC's collection and analysis of quality data to include the new data as a result of meaningful use requirements. The approach will be to create a data aggregator to accept data from providers using the CMS Physician Quality Reporting Initiative (PQRI) 2008 Registry XML standard.

In addition, I-APD funding will be used to provide an immunization interface from the North Carolina Immunization Registry (NCIR) to the IC to further support population management of Medicaid beneficiaries in 14 networks and 1,400 providers' offices throughout North Carolina. Funds will also provide support for interoperability of the NCIR and EHRs with a focus on the exchange of vaccination records and reducing the duplicate data entry burden on Medicaid providers. The addition of these and other public health data to a statewide service is described in Section 3.

B.2.6 Short- and Long-Term Value Proposition

The creation and provision of statewide HIE core services will yield benefits for participants across operational, service delivery, and programmatic dimensions as outlined below.

Table 14 – Participant Benefits

Category	Participant Benefit
Operations	○ Reduced cost of operations and solutions ○ Leverage of common services (e.g., Value-Added Gateway) ○ Leverage investment in Core Services to reduce cost of connecting physicians ○ Access to shared applications services ○ Single connection and data governance model ○ Reduces cost of managing multiple interfaces and negotiating independent data agreements ○ Provides legal benefits to participants ○ Indemnification for physicians and the QO
Service Delivery	○ Improve care coordination and quality across a broader community ○ Access to NC HIE services will provide new tools and applications ○ CCHIE can leverage connectivity to DHHS and other healthcare QO's
Program	○ Ability to participate in collaborative community

B.2.7 Role of State Government

The role of state government was addressed earlier in *Section A.6*.

B.3 MEETING THE GOALS FOR ADOPTION OF CERTIFIED EHR TECHNOLOGIES

In order to achieve an 85 percent adoption rate among eligible professionals and over 70 percent adoption rate for eligible hospitals by 2015, NC DHHS is taking the following steps to accelerate adoption:

1. Early Implementation of the EHR Incentive Program

In early 2011, NC actively invested in developing the systems necessary to administer the EHR Incentive Program, including working with CMS and its partners on the connection of the NLR. The first EPs who successfully attested to A/I/U of a CEHRT received payment in March, 2011.

Partnering with the REC

In addition to administering the physician practice quality improvement program, NC AHEC serves as a federally designated Regional Extension Center (REC) that provides individualized, onsite EHR consulting services to practices. NC Medicaid partners with the REC through management meetings and participation in REC staff and office hours calls to help their EHR consultants target outreach and support efforts to clinicians who serve Medicaid recipients.

2. Multi-channel communication

An investment has been made in a number of different communication channels in an effort to connect with, inform, and encourage providers in their adoption of EHRs. As of December, 2011, these include:

- Dedicated NC Medicaid EHR Incentive Program webpage within the DHHS website, including an FAQ section: http://www.ncdhhs.gov/dma/provider/ehr.htm
- Monthly contributions to the Medicaid Provider Bulletin: http://www.ncdhhs.gov/dma/bulletin/index.htm
- Articles and surveys published in partner newsletters and communications, including NCHICA, NCHA, and NCMS
- Memos e-mailed directly to the Medicaid provider community on various topics
- Presentations to REC staff, NC medical school representatives, NCHA, and CCNC Clinical Directors
- Two e-mail and phone support channels:
    - For Program or process questions:
        - (919) 855-4200
        - NCMedicaid.HIT@dhhs.nc.gov
    - For technical issues or attestation status:
        - (866) 844-1113
        - ncmips@csc.com
- NC Legislative Quarterly HIT Report, which includes Medicaid, ARRA-funded, and private HIT initiatives.

B.4 SUPPORTING QUALITY REPORTING AND CARE IMPROVEMENT GOALS

While access to HIE services and widespread adoption of certified EHR technologies are critical enablers of care improvement, providers also need the ability to collect, report and receive feedback on quality indicators in order to advance care and population health along evidence-based guidelines. Therefore, North Carolina will ensure providers have routine and timely feedback on the CMS-approved quality measures they collect and submit.

In addition, NC DHHS will expand upon its hands-on quality improvement model, the North Carolina Improving Performance in Practice (IPIP) project via the NC Area Health Education Centers, developed in partnership with the NC Governor's Office, CCNC, the NC Medical Society, the NC Academy of Family Physicians, The Carolinas Center for Medical Excellence, the NC Healthcare Quality Alliance, and the major insurers in the State and other State agencies. NC IPIP is currently funded through NC AHEC funds as well as funding from philanthropic and payer organizations, and delivered through a statewide network of Quality Improvement Consultants (QICs) employed by the NC AHEC Program at each of its nine regional centers. Through AHEC's partnerships, all primary care providers in NC who accept

Medicaid have access to the resources of the QICs. The QICs are currently working in nearly 200 primary care practices across the State, providing assistance to:

- Integrate the use of the EHR into practice work flow to improve care management
- Develop office systems within the EHR to track patients with specific chronic diseases
- Train practice staff to use data from EHR systems to produce dynamic, electronic reports reflecting clinical performance as measured by nationally-endorsed indicators
- Assist practices in reporting quality measures
- Educate practices on the importance of participating in health information exchange
- Build the consistent use of quality measurement and health information exchange into common office policies and protocols to support improvement in care with increased access to data
- Assist practices to use resources within the EHR to help educate their patient population on the importance of preventing and/or managing chronic disease
- Stay current on all meaningful use criteria as it evolves over time
- Provide electronic reporting to the designated public entity

The NC AHEC Program is prepared to expand this proven model to embody the work of the REC by putting in place the personnel, educational resources, and direct technical assistance support to successfully implement and utilize technology to improve the quality of healthcare as funding allows.

B.5 MEDICAID TECHNICAL INFRASTRUCTURE AND ENVIRONMENT

North Carolina Medicaid is currently in the midst of a project to replace its existing MMIS. The Replacement MMIS will both leverage and contribute data to the emerging HIE technical infrastructure.

The Replacement MMIS is being developed under the oversight of a dedicated program office under the direction of the NC Department of Health and Human Services (DHHS), the Office of MMIS Services (OMMISS). As a peer to DMA, OMMISS is designing the replacement MMIS to support the MITA standards. OMMISS will endeavor to design the MMIS such that it is consistent with the provisions noted in the *North Carolina Statewide HIE Plan*, *Section 6.7*, the HIE services supported through the State HIE Cooperative Agreement will comply with all national standards as defined in the "*Health Information Technology: Initial Set of Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology: Final Rule.*"

North Carolina's Medicaid EHR Incentive Payment System (NC-MIPS, or MIPS) provides the interface through which hospitals and providers interact with the State HIT program, as well as functionality for the HIT staff to administer the program. MIPS is also in ongoing development through OMMISS and is designed to share aspects of the replacement MMIS.

The MIPS system integrates with the early deployment provider services module of the replacement MMIS, the CMS provider registry, and the existing legacy MMIS system. DMA and its partner agencies are moving progressively towards Services-Oriented Architecture (SOA) enabled via the MITA-style Enterprise Service Bus (ESB), as well as a DHHS ESB currently under analysis. DMA is engaged in negotiations to secure clinical data measures necessary to establish meaningful use via the NC-HIE and N3CN, a partner agency. This data is expected to be exchanged on both of the ESBs. Information exchange will be subject to the provisions and restrictions of the federal HIT rules, as well as existing provisions such as HIPAA.

MIPS' payment mechanism will be updated to use the replacement MMIS as the payment mechanism when it becomes available.

B.6 COMMUNITY CARE OF NORTH CAROLINA AND THE N3CN INFORMATICS CENTER

Community Care of North Carolina (CCNC) and the North Carolina Community Care Networks (N3CN) Informatics Center (IC) provide a critical infrastructure upon which North Carolina's "To-Be" Landscape will develop over the next several years. Through the Community Care program, North Carolina has a proven track record of engaging the provider community in meeting cost and quality objectives for the Medicaid program, and of leveraging public-private partnerships at the local and state levels toward aligned interests. North Carolina is proud of CCNC's successes over the past decade:

- Building primary care medical home infrastructure for the Medicaid population;
- Establishing a culture of quality improvement, comprehensive patient-centered care, and care coordination across care settings; and
- Reducing healthcare costs while raising the standard of care in North Carolina.

With over 4,500 primary care providers and over 1 million Medicaid recipients participating in the Community Care program statewide, and the active engagement of virtually all NC hospitals, health departments, departments of social services, and local mental health management entities, Medicaid has been a principal catalyst for quality improvement in North Carolina healthcare for years. The ARRA now affords an unprecedented opportunity to take a quantum leap forward toward a more effective, higher quality, less wasteful care delivery system and a healthier population.

The existing data interface between MMIS and the N3CN IC extends the reach and value of MMIS enhancements to a large, statewide user community: providers, provider extenders, and care managers directly involved in the care of the Medicaid population. Through the CMIS, Pharmacy Home, Reports Site, and Provider Portal applications described previously in this document, the goal of the Informatics Center is to put *the right information in the right hands at the right time* to promote evidence-based, patient-centered care by a coordinated care team.

As we promote and enable widespread adoption of EHRs among Medicaid providers and build statewide infrastructure for HIE among those provider systems, we are well-positioned to accelerate the meaningful use of that HIT/E capacity toward tangible improvements in efficiency, quality, and value in the Medicaid program. In addition to improving care, the N3CN IC will play an important role in enabling DMA HIT to verify meaningful use of CEHRT as DMA leverages the IC to collect and analyze practice-derived data from EHR systems. The goal of the funding planned for N3CN in the Medicaid Health Information Technology Implementation Advanced Planning Document (I-APD) is three-fold:

1. To expand connectivity between providers and the N3CN IC, advancing the meaningful use of their EHRs and the clinical data they collect.
2. To enhance the current capacity and functionalities of the IC to accommodate meaningful data collection and analytics.
3. To make the N3CN IC the vehicle for collecting meaningful use quality metrics for all professionals statewide who are eligible for the NC Medicaid EHR Incentive Program for the life of the program.

In 2012, N3CN will become the first Qualified Organization (QO) in North Carolina to connect to the NC HIE. To begin this work, N3CN will partner with NC HIE to build connectivity to CCNC practices as well as all non-CCNC professionals eligible for the NC Medicaid EHR Incentive Program who request the service. Expanded connectivity will allow the IC to collect real-time clinical data to supplement claims information, creating more robust, complete records of patient activity in N3CN applications and reporting systems. This new capacity will accelerate the meaningful use of EHRs and clinical data for all connected practices, resulting in better care coordination, improved outcomes, and decreased health expenditures, enabling delivery of a higher level of care to North Carolina patients.

In addition to expanding connectivity and enhancing the IC's current functionality, N3CN will act as the State's Clinical Data Repository (CDR) for the purposes of meaningful use reporting for the Program. In this role, N3CN's IC will collect clinical data from program participants as needed and provide meaningful use reporting to the State. In 2013, EPs and EHs will be required to submit quality measures to Medicaid electronically via the N3CN IC Provider Portal or through direct collection by N3CN from connected EHRs. As meaningful use requirements develop, the IC will likely interface directly with the NC Medicaid Incentive Payment Solution (NC-MIPS), the system through which eligible professionals and hospitals attest for incentive payments, to provide electronic submission of the data necessary for meaningful use attestation.

The diagrams below *(***Figures 6 and 7***)* illustrate the roles and features of the Informatics Center pertaining to 1) direct patient care delivery and care management; and 2) quality reporting and performance feedback, utilization management, evaluation, and program management. Existing and future data streams are represented by solid and dashed lines, respectively.

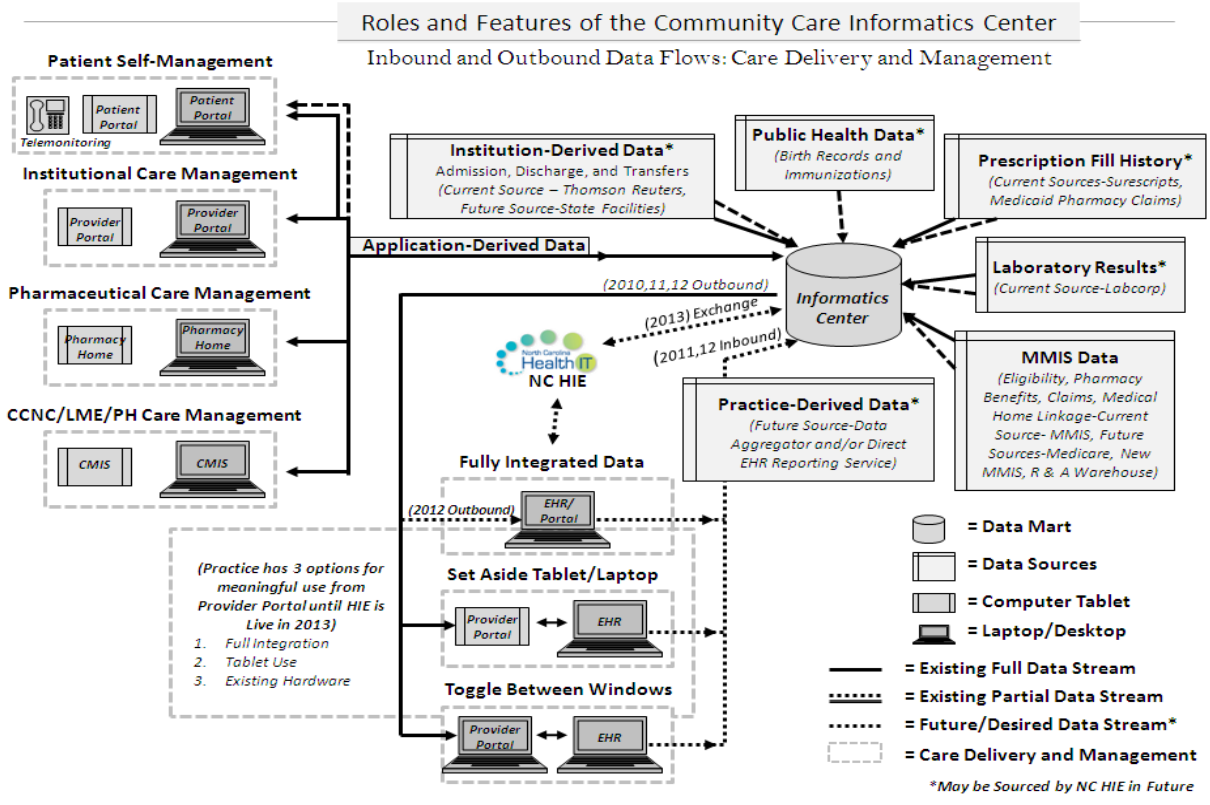

Figure 6 - Existing and proposed data flows for care delivery and management

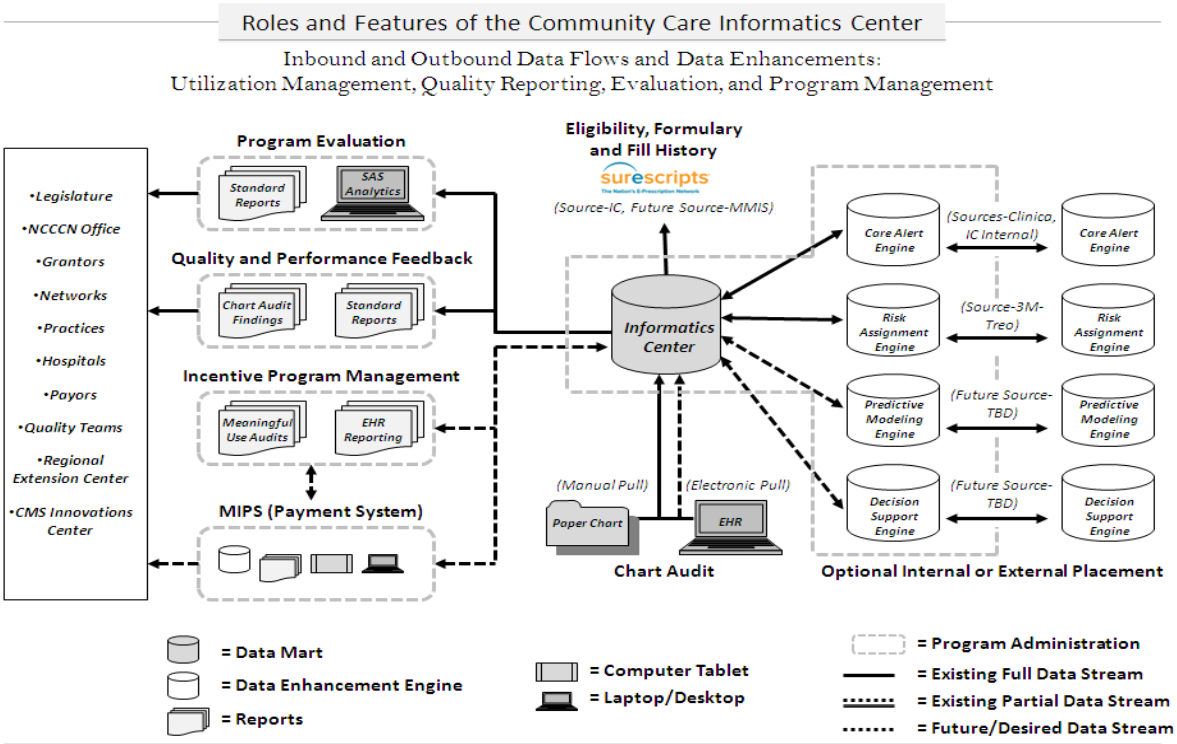

Figure 7 - Existing and proposed data flows for utilization management, quality reporting, evaluation, and program management

B.7 SPECIAL NEEDS POPULATION

The EHR Incentive Program has broad appeal to hospitals and professionals who serve the Medicaid population; however, NC is working to ensure that the needs of the most vulnerable are represented in the rollout of this program.

One example is the priority North Carolina places on the integration of the immunization registry. The North Carolina Immunization Registry (NCIR) is a secure, web-based tool that serves as the official source of NC immunization information. It provides electronic access to all NC local health departments. While it contains data for individuals of all ages, the importance and utilization of immunizations is greater for children, who compose approximately 50 percent of Medicaid's enrollment. NCIR integration with the statewide HIE is a high priority for DMA HIT. Outreach and technical assistance to professionals whose specialties are focused on caring for children (i.e., pediatric, family practice) is a priority for referrals to the RECs and follow-up programs.

Another example is the Children's Health Insurance Program (CHIP). On February 4, 2009, the Children's Health Insurance Program Reauthorization Act (CHIPRA) was enacted. This legislation marked a new era in children's coverage by providing states with significant new funding, new programmatic options, and a range of new incentives for covering children through Medicaid and CHIP. One of the clear goals of the legislation is to support states in developing efficient and effective strategies to identify, enroll, and retain health coverage for uninsured children who are eligible for Medicaid or CHIP but not yet enrolled in these programs.

CHIPRA has various parts. One part, Category D, targets pediatric practices and some family practices to help them understand their EHR's capabilities and ask their vendors targeted questions about the functionalities they need to improve care for their specific populations so they can align their existing QI initiatives with the technology. Category D also includes a topic area of the model called "Children with Special Needs." In this section and throughout the model, children with special needs are given strong consideration in relation to system requirements. In fulfilling the grant's requirements, North Carolina is utilizing the model to educate EHR vendors on the needs of children and provide guidance to providers on how EHRs can assist them in efficiently meeting those needs.

B.8 EFFECT OF STATE LAW

The NC HIE Legal/Policy Workgroup was charged with addressing the legal issues and/or barriers to the adoption of HIT. Prior to the enactment of recent legislation described in *Section A.12*, North Carolina law contained a complex mixture of opt-in and opt-out provisions based on provider type, communicable disease and minor's consent rules. As amended, North Carolina laws that impact healthcare providers' disclosure of patient information are consistent with the HIPAA Privacy and Security Rules. The North Carolina Health Information Exchange Act, codified in Article 29A of Chapter 90 of the NC General Statutes, is intended to improve the quality of healthcare delivery within North Carolina by facilitating and regulating the use of a voluntary, statewide health information exchange network for the secure transmission of patient information among healthcare providers and health plans in a manner that is consistent with HIPAA. The Act also ensures individuals have control over the use and disclosure of their information through the Network by providing individuals with a continuous right to affirmatively decide to disallow his or her patient information from being disclosed through the statewide HIE Network through an Opt Out process. The Act eliminates inappropriate statutory barriers to the adoption and use of electronic health records that previously existed throughout North Carolina law.

C ADMINISTERING AND OVERSEEING THE EHR INCENTIVE PROGRAM

C.1 PROGRAM ORGANIZATION, MANAGEMENT, AND OVERSIGHT

This section includes a high-level description of the NC Medicaid EHR Incentive Program and the specific actions necessary to implement the program. Included herein is the general approach to the program, the history of its oversight, and the roles and responsibilities of the DMA HIT Team and five core workgroups that currently contribute to its successful operation.

C.1.1 General Policy Goals

The aim of the DMA HIT Team is to promote the successful transition to meaningful use of CEHRT in North Carolina by supporting providers, administering incentive payments consistent with program rules and state policies, and engaging stakeholders and organizations statewide in efforts of collaboration and outreach around CEHRT. The DMA HIT Team anticipates working closely with the NC HIE and N3CN in 2012 and beyond to promote the benefits of EHRs to Medicaid providers and consumers.

C.1.2 Program Organization and the DMA HIT Team

C.1.2.1 Early Management and Approach

Early planning activities and initial administration of the NC Medicaid EHR Incentive Program were carried out by various workgroups through the Office of MMIS Services (OMMISS). In order to accelerate the launch of the program in NC, a mix of state personnel and contracted resources at OMMISS devised the following plan for its first program year. With the assistance of CSC and Quarterline, OMMISS built and launched the North Carolina Medicaid Incentive Payment Solution (NC-MIPS), consisting of programs and processes to ensure EPs and EHs have met the federal and State statutory and regulatory requirements for the EHR Incentive Program. To begin making incentive payments in early 2011 and avoid making modifications to the legacy MMIS set for replacement in July 2013, OMMISS developed a strategy to make payments initially through the North Carolina Accounting System (NCAS) with interfaces to the NLR and CSC's Enrollment, Verification, and Credentialing System (EVC). In mid-2011, payments began to be made through the legacy MMIS channel for greater efficiency.

C.1.2.2 Current Structure and Oversight

OMMISS continues to manage the development and operations of NC-MIPS. To further contain costs and improve efficiencies, additional state technical staff will be added in early 2012 to take on all further development activities. CSC will continue to provide NC-MIPS operations support, administering the provider enrollment, attestation, and incentive payment administration processes.

While NC-MIPS continues to live at OMMISS, administration and oversight of the program were moved to the Division of Medical Assistance (DMA) in 2011. State staff were added starting in July 2011, with a dedicated DMA HIT Team taking shape in the last quarter of 2011. The DMA HIT Team oversees provider outreach and communication, quality assurance, budget, appeals, and audit activities. As of December 2011, all but four of the positions in **Figure 8** below are filled. DMA is still working to hire three Program Integrity Auditors and a Provider Services Specialist.

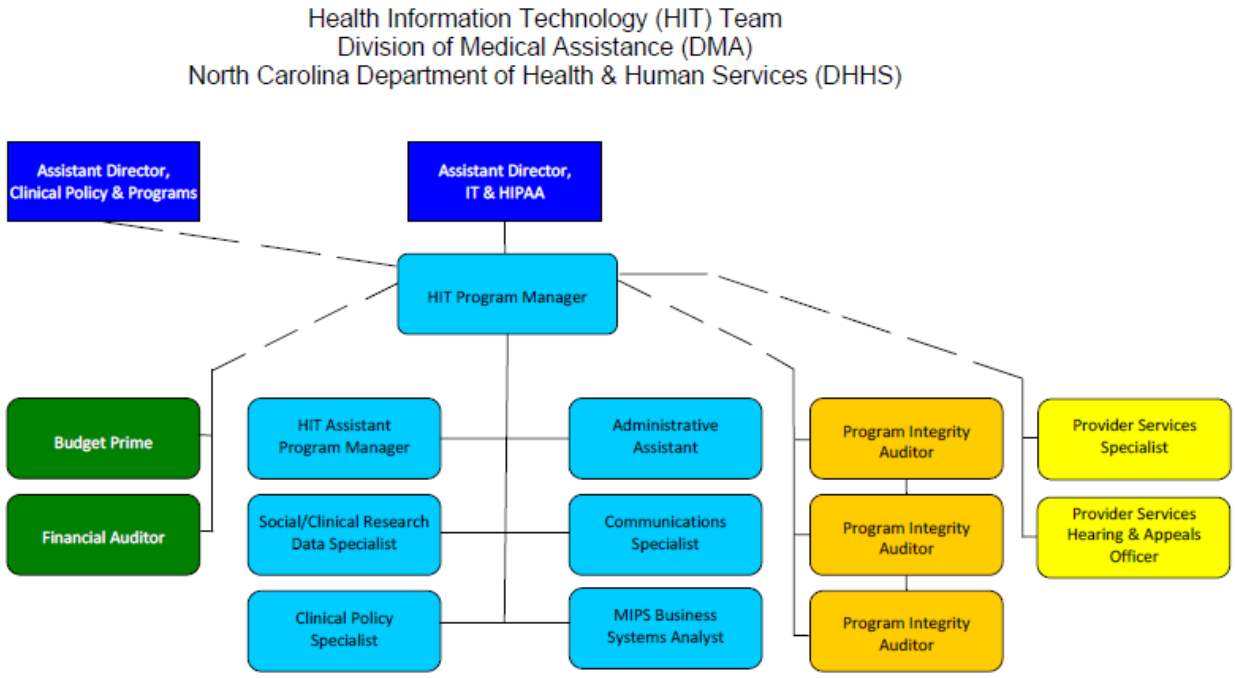

Figure 8 - DMA HIT Team Organizational Chart

The roles and responsibilities of the core DMA HIT Team members are as follows:

Assistant Director, IT & HIPAA

Monitors progress on the overall development of the DMA HIT Team and successful implementation of the NC Medicaid EHR Incentive Program. Reports upward within and outside the Division on NC Medicaid's progress toward federal and state HITECH goals and mandates.

Assistant Director, Clinical Policy & Programs

Provides high-level guidance and direction to the HIT Program Manager and Clinical Policy and Research arm of the DMA HIT Team at the intersection of HIT and Clinical Policy. Serves as the liaison between DMA Clinical Policy Chiefs and DMA HIT staff, identifying areas of opportunity for HIT within Clinical Policy & Programs.

HIT Program Manager

Responsible for overall planning, management, implementation, and oversight of the EHR Incentive Program. Core responsibilities include directing activities of the DMA HIT Team and five workgroups toward federal and State program goals, ensuring adherence to CMS-approved budget and workplans, and acting as the main program contact for CMS and other states.

HIT Assistant Program Manager

Leads clinical quality improvement initiatives, including meaningful use planning and devising and tracking program performance metrics. Coordinates HIT Team efforts with statewide HIE, N3CN, and other DHHS Divisions.

HIT Administrative Assistant

Serves in a variety of administrative capacities to provide support to the HIT team and increase communication and workflow efficiencies.

Social/Clinical Research Data Specialist

Designs and leads HIT data analytics, including NC-MIPS metrics reporting, MMIS data warehouse research, efficacy of outreach efforts, and data synthesis for outward/upward distribution. Tracks and analyzes HIT program performance metrics.

Clinical Policy Specialist

Serves as the subject matter expert on clinical policy, DMA policy, and all federal regulations governing the program. Works closely with Assistant Program Manager to identify opportunities for use of clinical data for new policy creation at DMA.

Communication Specialist

Crafts and executes HIT Communication Plan, including messaging, provider outreach, communication gap analysis, program website, articles, bulletins, communication with key stakeholders and partners, and maintenance of the SMHP and I-APD.

NC-MIPS Business Systems Analyst

Analyzes and directs NC-MIPS development and operations processes at OMMISS on behalf of DMA HIT Team. Identifies opportunities for streamlining and automating system and workflow processes to meet business needs.

Budget Prime

Manages HIT State budget, monitors accuracy of incentive payments, provides regular financial reporting and forecasting to HIT Program Manager, and conducts all CMS financial reporting related to HIT, including CMS 37 and 64 reports.

Financial Auditor

Half-time HIT employee; serves as the subject matter expert for hospital payment calculations. Calculates payments for hospitals, creates policy around NC-specific hospital eligibility and attestation requirements, and conducts outreach with hospitals as necessary.

Provider Services Specialist

HIT representative in DMA Provider Services responsible in large part for eligibility determination and provider outreach efforts. Subject matter expert in provider communications.

Provider Services Hearings & Appeals Officer

Creates and implements program appeals process, advises on pre- and post-payment denial and termination, and executes appeals hearings.

Program Integrity Auditors

Create and implement pre- and post-payment audit processes for professionals and hospitals; oversee recoupment of payment or overpayment in the case of State error or adverse post-payment review findings. This work to be carried out in large part by Public Consulting Group in 2012, until state staff can be added and trained.

In addition to the DMA HIT Team, five core workgroups contribute to the continued planning for Medicaid HIT. These include:

- NC DHHS HIT Steering Committee
- Provider Outreach Workgroup
- Clinical Quality and Data Workgroup

- Audit Strategy Workgroup
- Public Health Meaningful Use Workgroup

The DMA HIT Team and OMMISS carefully plan and document the various components of the EHR Incentive Program administration, including NC-MIPS, and the Replacement MMIS project to ensure separate tracking of activities for funding and reporting purposes. DMA and OMMISS staff working part-time on the EHR Incentive Program complete timesheets to document accurate distribution of effort and funds. This timesheet data goes through a cost allocation program to charge the appropriate amount of payroll expenses to the correct cost centers. Where projects are eligible for various Federal Financial Participation (FFP) rates (i.e., 90 percent administrative, 100 percent incentive payments), this is specified in the last node of the cost center, and the invoice reviewer codes the payment with the proper FFP funding.

C.2 OUTREACH AND PROVIDER SUPPORT

North Carolina seeks to maximize provider participation in the incentive program and, through coordination across multiple stakeholders, will support the provider community using multiple approaches.

C.2.1 Stakeholder collaboration in plan development (e.g., HIE, REC, etc.)

Section A of the SMHP describes the complex HIT landscape in North Carolina. NC Medicaid has worked closely with the Office of the State Coordinator for HIT, the Replacement MMIS vendor, the Reporting and Analytics vendor, OMMISS, The State Controller's Office, NC HIE, N3CN, DMA and the REC and other stakeholder groups to develop the SMHP and will continue to do so throughout the life of the program.

C.2.2 HIT Communication Plan

NC Medicaid is developing a comprehensive communication plan for the EHR Incentive Program that will address many aspects of the program. The plan will seek to achieve several goals including:

- Increase number of participants in the EHR Incentive Program
- Increase website traffic by 15 percent over the previous year
- Increase awareness of program within provider community
- Increase awareness of program within DHHS and stakeholder communities
- Increase flow of information to stakeholders and provider community

This plan is currently in development, and will reflect the input of a range of stakeholders, including the Office of the State Coordinator for HIT, the NC State HIT Steering Committee and representatives from NC HIE.

The plan will determine the best messages to achieve the desired goals and the best ways to deliver those messages including websites, Medicaid Provider bulletins, outreach via partner organizations, webinars, advertising, social media, presentations, and media relations.

To gauge the effectiveness of communication activities, DMA Provider Services will develop a survey every 2-3 years to monitor primary care physician's awareness of HITECH, meaningful use requirements, EHR incentive payments, and other federal and state initiatives to support provider adoption of health IT. The survey will include questions to determine the extent to which providers understand the education and training materials used in the EHR/HIT initiative and the impact of education efforts on EHR adoption. DMA is also focused on ensuring all physicians understand the various privacy and security issues

related to the electronic transmission of health information, including recent changes that strengthen the civil and criminal enforcement of the HIPAA rules.

Another goal of the survey is to identify practitioners requesting information about the Medicaid EHR Incentive Program, in addition to assessing provider adoption of and attitudes toward health IT. For these reasons, DMA has decided to focus its communications strategy along the following three themes:

Theme 1: Introduce NC Medicaid EHR Program

Theme 2: Program awareness including application process and requirements

Theme 3: EHR Incentive Program is helping Medicaid providers lower costs and improve healthcare through meaningful use of CEHRT

This strategy, and corresponding business plan, will produce an effective implementation process which will be well supported and maintained, continually developed and modified depending on the results of the survey.

To determine the relative success of these efforts, DMA will evaluate communication efforts on a regular basis.

C.2.2.1 Provider Outreach via Partners

DMA plans to utilize the many stakeholders and partner groups involved with EHR to reach providers with program messages, updates and new information as it becomes available. Outreach activities such as webinars, presentations, telephone conferences, questions and answer sessions, official guidance and training sessions have already occurred with groups such as the REC, NCHA, NCHICA, and the medical schools in the state. Additional outreach through these groups and others like them will continue and expand throughout the life of the program.

C.2.2.2 NC Medicaid EHR Incentive Program Website

The Medicaid EHR Incentive Program website is part of the larger DMA website and is located at: http://ncdhhs.gov/dma/provider/ehr.htm. The page includes sections about the EHR Incentive Program including:

- Important Information
- Introduction
- Are you eligible?
- Program and Payment Years
- Path to Payment
- Provider Registration and Attestation
- Meaningful Use
- Links
- Frequently Asked Questions
- Additional Resources
- Contact Us

This site is updated on a regular basis.

A proposal to create a new website in conjunction with the State HIT Coordinator's office has been recommended. In the I-APD 2012 annual update, NC will request to use approved unspent 2011 funds on this new and enhanced website, utilizing the existing OHIT URL: HealthIT.NC.gov. The site would be a one-stop shop for all HIT activities within the State.

In a "HITECH" vein, the new website would have a modern and forward-looking appearance and navigation structure, and would include current technologies and be upgradeable to emerging technologies easily. The site would be designed to engage North Carolinians in the State's HIT efforts through a HIT dashboard of HITECH progress in NC, blogs on emerging issues, video presentations, graphic interfaces for tracking meaningful use of CEHRT, and maps of EHR adoption, incentive monies disbursed, and REC activities across the state.

C.2.2.3 Medicaid Bulletins

Medicaid Bulletins are the primary mode for communicating important policy information to individual Medicaid providers. These Bulletins will be used to communicate EHR Incentive Program information. More than 11,000 practices, professionals, and healthcare entities currently subscribe and access the Medicaid Bulletin via listserv and DMA website.

C.2.2.4 Medicaid EHR Incentive Program Attestation Guides

DMA has developed attestation guides to assist EPs and EHs with the attestation process. These guides are available online in pdf form in the following locations:

- The NC Medicaid EHR Incentive Program website
    - http://www.ncdhhs.gov/dma/provider/ehr.htm
- The NC Medicaid Incentive Payment System website
    - https://ncmips.nctracks.nc.gov/

C.2.2.5 Current State and Gap Analysis

As of 2009 in North Carolina, most medical records remain paper-based. The NC Health Information Technology Task Force estimated that 30-40 percent of practices used some form of EHR, while only 6-8 percent of practices use a fully integrated EHR (NC HIT Task Force Strategic Plan, 2009). This gap in adoption indicates tremendous opportunity for the NC DHHS to support providers.

The vast majority of physicians in NC provide ambulatory care in small practices with fewer than 10 physicians. There are 5,600 primary care providers that include physicians, physicians' assistants and nurse practitioners in individual and small group practices. These practices are either rural, connected to public and Critical Access Hospitals, housed in Community Health Centers and Rural Health Clinics, or practicing in other settings that accommodate uninsured, underinsured, and medically underserved populations. Priority primary care providers play a critical role in North Carolina, increasing access to care across the state.

C.2.3 NC-MIPS Call Center and Other Resources

Pursuant to program requirements, the State established an NC-MIPS Call Center to assist providers with questions and concerns around registration, attestation, and the State's validation process. The Call Center is an augmentation of the existing provider enrollment (EVC) customer service center staffed by CSC. The NC-MIPS Operations Team hosts the Call Center, and is comprised of CSC and Quarterline staff, including some veteran EVC help desk staff. The Operations Team tracks provider interactions and works with providers to resolve open issues. As part of the NC-MIPS solution, desk procedures and

operations guides tailored to supporting both provider interactions and systems operations were developed. These manuals are currently being upgraded to support meaningful use in 2012 and beyond.

C.3 NC MEDICAID EHR INCENTIVE PROGRAM BUSINESS REQUIREMENTS

This section details NC's Medicaid's business requirements relative to the EHR Incentive Program.

C.3.1 Enrollment Periods

Enrollment requirements are defined by program year. North Carolina mirrored Medicare's adoption of a 60-day "tail period" to allow for attestation for a given year beyond the end of that year. The tail period is defined as a period of time beyond the end of the Fiscal Year (for EHs) or Calendar Year (for EPs) during which providers may attest for the prior payment year. For example, EHs had until November 30, 2011 and EPs have until February 29, 2012 to attest for payment year 2011.

Enrollment starts with a registration communicated to the state from the National Level Repository (NLR) via a CMS defined interface.

Table 15 - Enrollment Period Verification

Eligibility Criteria	NLR-Reported Information	State Review and/or Verification Process
EP & EH: Program enrollment period	Registration	*Verification:* EP has not already received 6 years of incentive payments. Do not allow entry into the program after 2016. Do not allow any payments after 2021.
EP & EH: Break in enrollment period	Registration	*Verification:* Do not allow breaks in enrollment period for EHs after 2016.

C.3.2 Provider Type

NC-MIPS verifies the provider type sent via NLR registration interface against state data for each provider to ensure the professional or hospital is one of the following provider types:

1. Doctor of Medicine or Osteopathy
2. Doctor of Dental Surgery or Dental Medicine
3. Physician
4. Nurse Practitioner
5. Certified Nurse Midwife
6. Dentist
7. Physician's Assistant Practicing in FQHC or RHC led by a Physician Assistant
8. Acute Care Hospital
9. Children's Hospital
10. Critical Access Hospital

The following provider types are not currently considered to be eligible by CMS or NC:

1. Doctor of Podiatric Medicine
2. Doctor of Optometry
3. Chiropractor

Table 16 - Provider Type Verification

Eligibility Criteria	Provider-Reported Eligibility Information	State Review and/or Verification Process
EP: EP type	– Medicaid EP provider type selection from NLR	*Verification:* Using NC Medicaid provider enrollment data and state provider licensure data, crosswalk against provider type and specialty data to validate that provider is enrolled and matches with valid EP type.
EH: EH type	– Medicaid EH provider type selection from NLR – CCN	*Verification:* Using NC Medicaid provider enrollment data and state provider licensure data, crosswalk against provider type and CCN to validate that provider is enrolled and matches with valid EH type. Using cost report data, validate that ALOS for acute care hospitals is 25 days or less. *Review:* Confirm CCN is in appropriate range.

C.3.3 Patient Volume

Providers must supply patient volume data for calculations consistent with the Final Rule. These data will be subject to a series of verifications. Patient volume will be calculated using the encounter-based formula option specified under the Final Rule:

Total Medicaid encounters in any representative, continuous 90-day period in the preceding calendar year / Total patient encounters in the same 90-day period.

For EPs, a Medicaid encounter is defined as services rendered on any one day to an individual where Medicaid or a Medicaid demonstration project under Section 1115 of the Social Security Act paid for part or all of the service as stated in the Final Rule. EPs must count actual encounters, defined as a unique patient on a unique day, from their own auditable data source. If there is a problem verifying the data, DMA may request additional information to assist in the validation process.

Medicaid patient volume should be calculated in the following way:

Numerator: In any continuous 90-day period, any unique encounter (an EP sees a patient for any service) that is covered in part or whole by Medicaid.

Denominator: In the same 90-day period, all unique encounters (a patient seen by an EP for any service), no matter the payment method.

To verify Medicaid patient volume, DMA uses paid Medicaid claims as a proxy for encounters. DMA sums the paid Medicaid claims for the 90-day period for the Medicaid provider number(s) listed by the EP in her/his attestation. Only one claim per patient per day per provider is included in the total for the numerator. Global billing codes such as certain OB/GYN procedure claims are counted more than once toward the total for the numerator to represent the typical number of encounters covered by the one claim.

The denominator provided by the EP in her/his attestation is subject to verification by post-payment audit, but is utilized as submitted for the Medicaid patient volume percentage calculation.

C.3.3.1 Patient Volume Verification

During attestation, the provider will supply data indicating fulfillment of each of the following eligibility criteria. NC will review each of the provider-reported eligibility factors to assure that providers are in compliance with the eligibility requirements and, when possible, verify the provider-reported information against available State data. Selected elements will also be subject to post-payment audit.

Table 17 - Patient Volume Pre-Payment Verification

Eligibility Criteria	Provider-Reported Eligibility Information	State Review and/or Verification Process	Considerations
EP: FQHC/RHC "practices predominantly"	– FQHC/RHC patient encounters over 6-month period – Total patient encounters over same 6-month period	*Review*: Assure that reported numbers are appropriate for an individual practitioner and demonstrate over 50% of encounters occurred at an FQHC/RHC.	N/A
EP & EH: Medicaid volume reporting period	– 90-day reporting period for volume determination	*Review*: Assure that 90-day range falls entirely within preceding fiscal year (EH) or calendar year (EP). Numbers in date range are representative of typical volume.	N/A
EP: Medicaid volume	– Medicaid encounters over 90-day reporting period – Total patient encounters over 90-day reporting period	*Review*: Calculate ratio of encounters to determine if provider-reported volume meets requirements. *Verification*: Use State claims data (group claims data or individual claims data where EP is attending and/or billing provider where no attending provider is listed) for specified 90-day volume reporting period to verify provider-reported Medicaid encounters. If under requisite 30% or 20%, request detailed documentation via approved template of provider's encounters for further research.	Multiple claims for same patient and day are counted as one.

Eligibility Criteria	Provider-Reported Eligibility Information	State Review and/or Verification Process	Considerations
EP: FQHC/RHC "needy individual" volume	– Medicaid encounters over 90-day reporting period – CHIP encounters over 90-day reporting period – Uncompensated/reduced fee care encounters over 90-day reporting period – Total patient encounters over 90-day reporting period	*Review*: Using provider-reported information, calculate ratio of encounters to determine if volume meets appropriate level. *Verification*: Using State claims data for specified 90-day volume reporting period, verify reported Medicaid volume. If under requisite 30% (or 20%), request detailed documentation via approved FQHC/RHC template of provider's needy individual encounters and validate Medicaid portion against claims data.	– Multiple claims for same patient and day are counted as one. – Using claims and provider enrollment data, verify place of service, category of service provider type, and specialty for consistency with providing care in FQHC/RHC.
Acute Care EH: 10% Medicaid volume threshold	– Medicaid inpatient discharges (FFS and MCO) over 90-day reporting period – Medicaid ED visits (FFS and MCO) over 90-day reporting period – Total inpatient discharges over 90-day reporting period – Total ED visits over 90-day reporting period	*Review:* Using provider-reported information, calculate ratio of Medicaid inpatient discharges and ED visits against total inpatient discharges and ED visits to determine if volume meets appropriate level. *Verification*: Verify that provider-reported data is consistent with claims data for the 90-day volume reporting period.	– Multiple claims for same patient and day are counted as one.

C.3.4 Certified EHR Technology

To ensure providers are using CEHRT, North Carolina collects and verifies the reported EHR certification number. This number is tracked by ONC.

Table 18 - EHR Certification Verification

Eligibility Criteria	Provider Reported Eligibility Information	State Verification
EP & EH: EHR certification number	EHR certification number via NLR registration interface or keyed into NC-MIPS.	*Verification:* Interface between NC-MIPS and ONC validates certified EHR number.

C.3.5 Adopt, Implement, or Upgrade

In the first payment year, providers can receive payments for adopting, implementing, or upgrading (A/I/U) CEHRT.

Table 19 - EHR A/I/U Verification

Eligibility Criteria	Provider-Reported Eligibility Information	State Review and/or Verification Process
EP & EH: Demonstration of A/I/U	Provider attestation of adoption, implementation, or upgrade of CEHRT. *Provider is asked, but not required, to submit documentation and is advised to maintain documentation in the event of post-payment audit.	*Review:* Review attestation of A/I/U and documentation, if supplied.

C.3.6 Meaningful Use

North Carolina will accept meaningful use attestations for the first time in 2012. Providers who attest to meaningful use will submit and attest to the same meaningful use measures and clinical quality measures put forth by Medicare; as of January 2012, NC has no additional requirements.

As of January 2012, all NC Medicaid EHs are dually eligible, and will demonstrate meaningful use only once for the Medicare EHR Incentive Program. Upon successful Year 2 attestation with Medicare, their information will be passed to NC, and they will be invited to attest for their Year 2 Medicaid payment by inputting the prior year's Medicaid patient volume data into NC-MIPS. Additional years of cost report data will not be necessary unless the hospital initially qualified under the rules laid out in *Section C.5.3.2 Alternate Payment Calculation* or recently experienced a change of ownership, merger, divestiture, etc. In the case of the latter, an EH must report the prior year's cost report data each year for payment adjustment until four years of cost report data under a single CCN are recorded (see *Section C.5.3 Payment Calculation for Eligible Hospitals* for more information).

In addition to meeting Medicaid provider eligibility and Medicaid patient volume requirements, NC Medicaid EPs who are demonstrating meaningful use must attest to the following requirements to receive

a Year 2 payment. In Year 2, all meaningful use measures will be keyed into NC-MIPS by the EP and will undergo State review.

Table 20 – Meaningful Use Verification

Eligibility Criteria (EPs only)	Provider Reported Eligibility Information	State Review and/or Verification Process
90-day reporting period within current calendar year	Input of reporting period within current calendar year.	*Review:* Ensure input period is valid.
At least 50% of patient encounters occur at a location with CEHRT	Input of at least one such location and attestation to the measure.	*Review:* Ensure at least one location is entered and EP has confirmed that at least 50% of their patient encounters occur at a location with CEHRT.
80% of unique patients at CEHRT-enabled locations have structured data recorded in the CEHRT	Yes/No.	*Review:* Ensure "Yes" is checked.
Demonstration of meeting all 15 Stage 1 core measures	Input of Yes/No, numerators/denominators, and/or exclusion, as they apply to each measure.	*Review:* Review completion and system-generated acceptance of all measures and any exclusions.
Demonstration of meeting 5 of 10 Stage 1 menu set measures, including 1 public health measure	Input of yes/no, numerators/denominators, or exclusion, as they apply to each measure.	*Review:* Review completion and system-generated acceptance of 5 measures and any exclusions. Ensure at least 1 attested measure is from the public health list.
Demonstration of meeting 6 Clinical Quality Measures, including 3 core or alternative set, and 3 additional	Input of numerators/ denominators for 3 core measures or 3 alternative set measures (alternative set required for any core measures with a denominator of zero); and any 3 additional measures.	*Review:* Review completion and system-generated acceptance of the 6 measures, ensuring all core or alternative set measures and additional measures were successfully submitted.
Attestation to meaningful use of CEHRT	Box checked and attestation signed.	*Review:* Ensure box is checked and attestation is signed, indicating attestation to meaningful use of CEHRT.

C.4 NC MEDICAID INCENTIVE PAYMENT SOLUTION (NC-MIPS)

The NC Medicaid Incentive Payment Solution (NC-MIPS) is a proprietary system built to collect and verify provider attestation data—including enrollment period, provider type, patient volume, and attestation details—for the purposes of administering the EHR Incentive Program in compliance with the Final Rule.

NC-MIPS consists of programs and processes to ensure EPs and EHs have met the federal and State statutory and regulatory requirements necessary to receive EHR incentive payments.

At a high level, the NC-MIPS' workflow is as follows:

1. Receive registration messages and data from the NLR
2. Match registration data to the state professional and hospital registry
3. Invite and allow EP/EH to attest with NC through the NC-MIPS provider portal
4. Verify information, determine payment qualification, and calculate payment amount
5. Notify NLR of eligibility status
6. Coordinate with NLR to avoid duplicate payments and/or payment errors
7. Make payments according to State business rules
8. Return payment information to NLR

This workflow requires interaction between multiple systems and users. These interactions include:

- Communication with the NLR using FTPS from a server with a CMS-provided certificate, to a secure, assigned Gentran mailbox. NC-MIPS adheres to national data standards for all such data exchanges.
- Communication with the NC Tracks website, where providers create an account, enter information for eligibility determination, complete attestation, and track attestation status. See *Appendix 4: NC-MIPS Sample Screenshots.*
- Communication with the Enrollment, Verification, and Credentialing (EVC) system that currently serves providers in parallel with the Legacy Provider sub-system.
- Communication with MMIS to execute the payments once approved.
- Communication with the NC Medicaid claims data warehouse.
- Communication with two user interfaces:
    - Interface 1: used by professionals and hospitals to complete registration, provide attestation data, and view attestation status.
    - Interface 2: used by operations staff to process attestations from eligibility determinations to payment.

These interactions and relationships are depicted in **Figure 9** *NC-MIPS Integration* and **Figure 10** *NC-MIPS Systems Map* below, and described in the following C.4 sections.

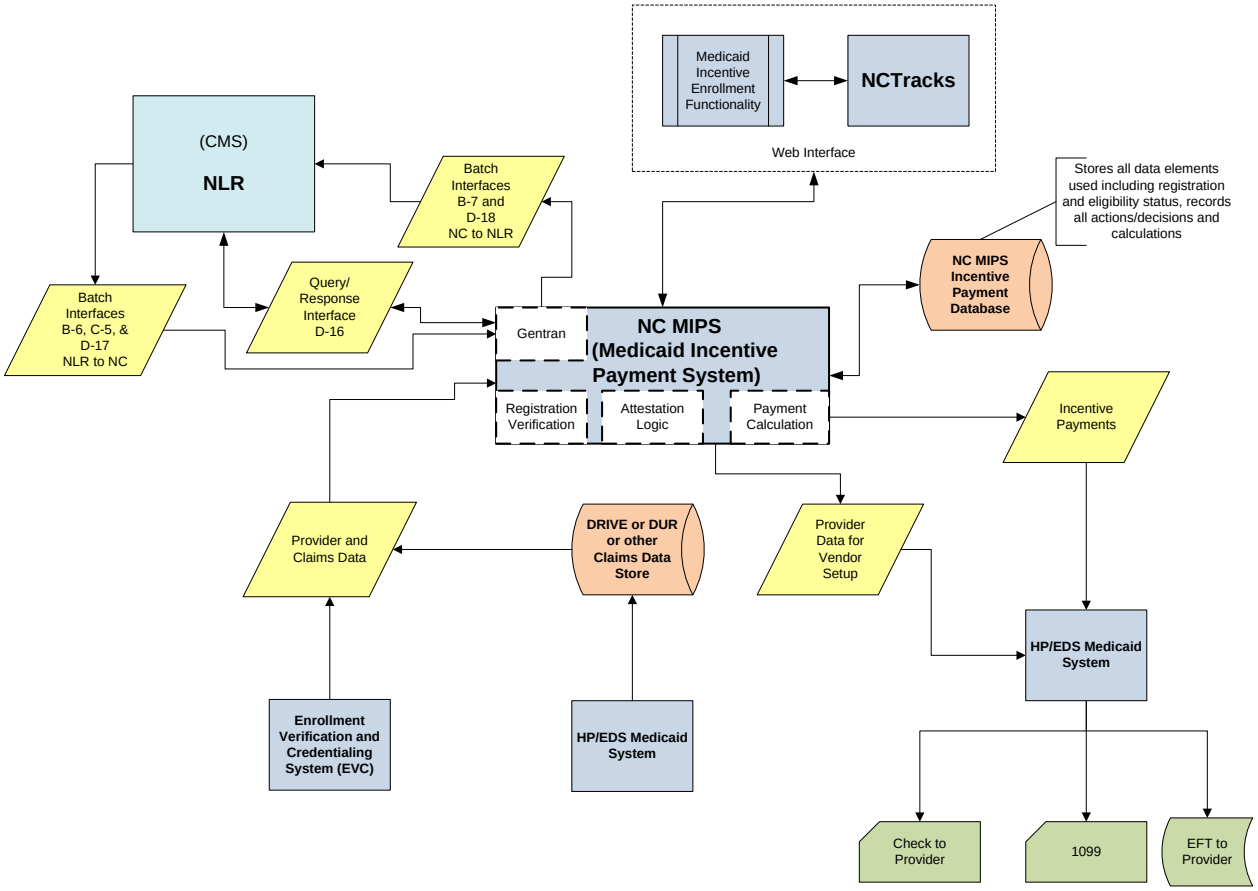

Figure 9 - NC-MIPS Integration

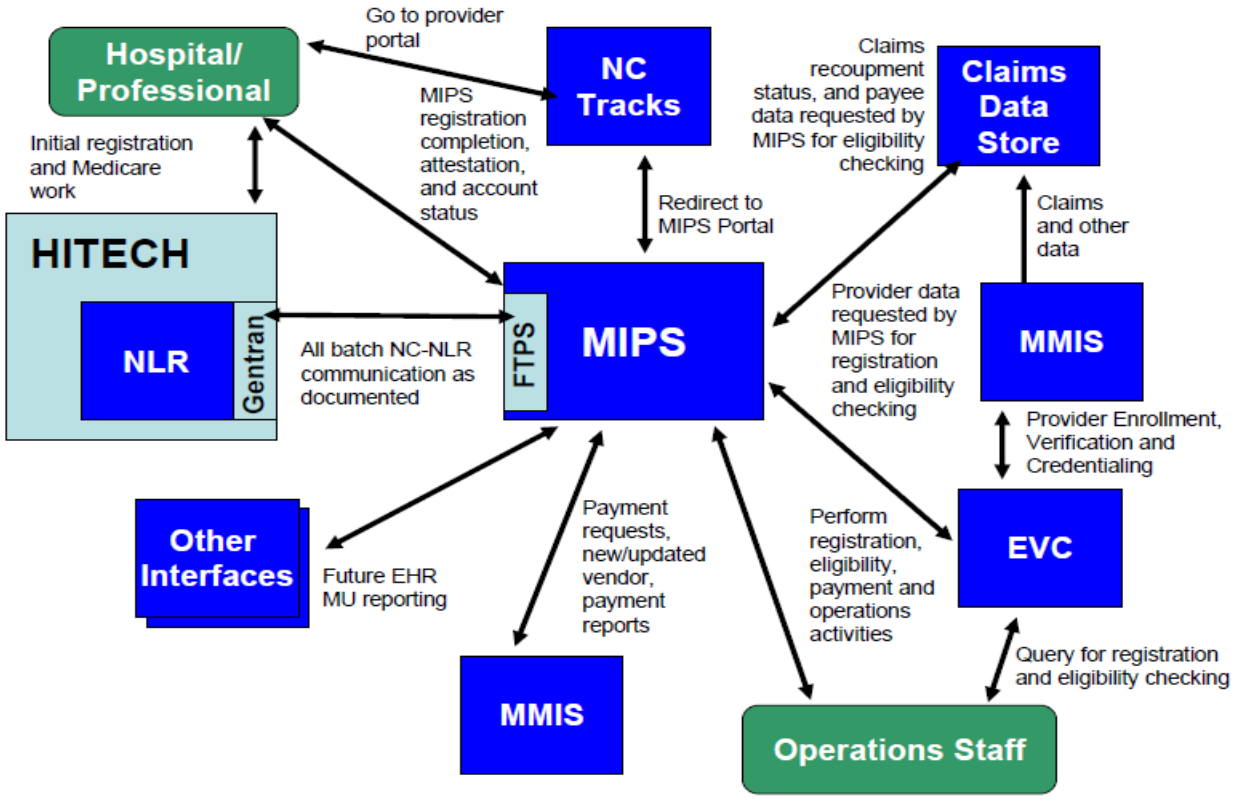

Figure 10 - NC-MIPS Systems Map

Figure 11 *Provider Interaction with NC-MIPS* below highlights the interaction of providers with CMS and NC-MIPS from registration through notification of a payment decision.

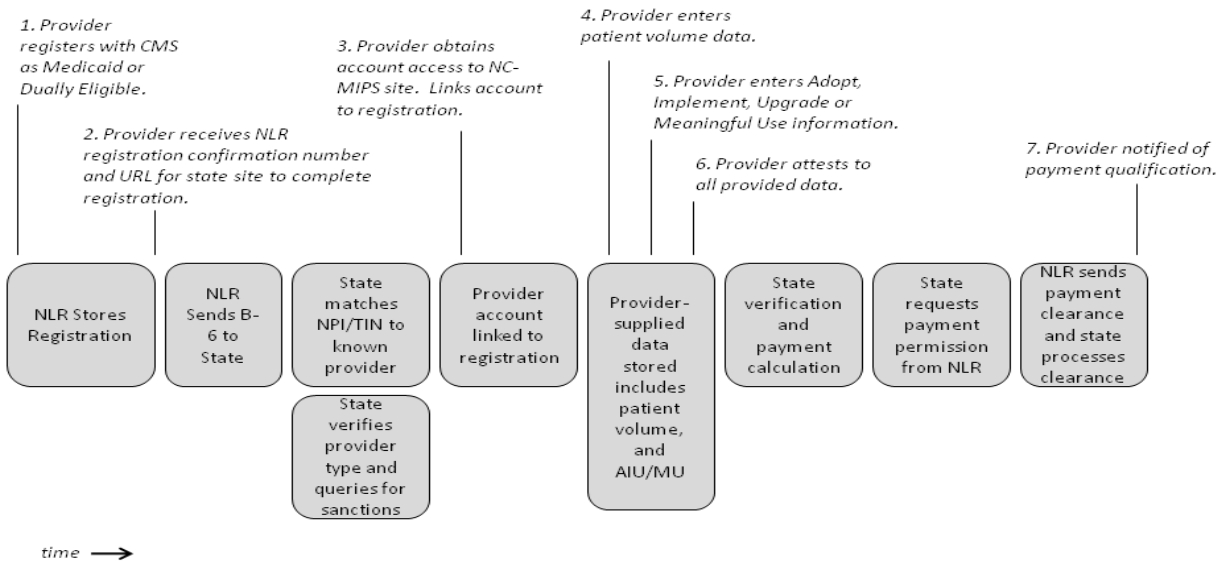

Figure 11 - Provider Interaction with NC-MIPS

NC-MIPS achieved many of the milestones scheduled for 2011. In addition, provider communication, system analysis and design, and joint interface testing with CMS precede the milestones laid out here.

2011 (Actual)

- January 1, 2011—Go Live (CMS Registration)
- January 4, 2011—EP Registrations received from CMS
- January 15, 2011—EH Registrations received from CMS
- February 15, 2011—Go Live (NC-MIPS Attestation)
- March 2011—EP Attestations Begin
- March 2011—Go Live (Validation and Payment)
- March 2011—EP Incentive Payments Begin
- September 1, 2011—EH Attestations Begin
- September 31, 2011—EH Reporting Year Ends for FFY 2011
- September 2011—EH Incentive Payments Begin
- November 30, 2011—EH Attestation Deadline for FFY 2011
- December 2011—In excess of $20 Million of Incentive Payments Distributed

Beginning in January 2012, further NC-MIPS development will be carried out in-house at OMMISS/DMA by newly added state staff. Early 2012 projects include addition of meaningful use attestation capability, system accommodation of the appeals and audit processes, and advanced reporting functionalities. To accommodate these upgrades, 2012 A/I/U attestations will be accepted though an electronic attestation template in April and May.

2012 (Planned)

- February 29, 2012—EP Attestation Deadline for CY 2011
- June 5, 2012—Go Live (2012 A/I/U Attestation through NC-MIPS)
- June 27, 2012—Go Live (Meaningful Use Attestation)
- June 1, 2012—Go Live (Automated Appeals and Audits)

C.4.1 NC-MIPS Activities

Overview

All Providers interested in applying for either Medicare or Medicaid incentives under ARRA are required to register first with CMS. Eligible Professionals (EPs) must choose to participate in either the Medicare or Medicaid Incentive Program, while Eligible Hospitals (EHs) may qualify to participate in both programs (“dually eligible”). Once registered with CMS, any EP or EH applying for a Medicaid incentive payment with North Carolina must apply at the state level through NC-MIPS.

Project Management

The Department established the Office of MMIS Services (OMMISS) as a Program Management Office (PMO) to oversee the various health information technology projects associated with the Replacement MMIS. The Replacement MMIS is a multi-payer initiative with Medicaid, State Children’s Health Insurance Program (SCHIP), Public Health, Rural Health, and Mental Health, Developmental Disabilities, and Substance Abuse Services. The projects that are a part of this effort include the MMIS Replacement, decision support and health informatics, surveillance and utility review, the MITA State Self-Assessment, NC SMHP development, and most recently, NC-MIPS.

Under the executive sponsorship of the State Medicaid Director, OMMISS was directly responsible for the design, development, testing, and implementation of NC-MIPS until April 1, 2012. Since that date, new NC-MIPS development activities are overseen by DMA. OMMISS is still responsible overseeing NC-MIPS Operations, planning and coordinating activities with the Medicaid Enrollment Service Center and DMA to create and maintain the necessary processes and staffing to properly support the program as outlined below in the Functional Requirements.

Functional Requirements

There are six major functions required for the administration of incentive payments through the NC Medicaid EHR Incentive Program.

1. Registration

CMS currently provides a mechanism for EPs and EHs to register for the EHR Incentive Programs at the national level. Registration information is then collected and stored by CMS, and is sent via a *B-6 interface* to North Carolina for any EP or EH who has indicated that they would like to participate in the NC Medicaid EHR Incentive Program. The NC-MIPS system then verifies data elements against NC Medicaid data, checking specific eligibility criteria. If the EP or EH is deemed ineligible at this point, NC updates CMS with this information via a *B-7 interfac*e. For EPs and EHs who are deemed initially eligible, a *B-7 interface* is returned later in the process.

2. Attestation and Qualification

After registration with CMS and the initial eligibility check, NC must collect and analyze information from EPs and EHs to qualify them to receive incentive payments. To qualify for payment in the first year of participation, CMS and NC collect attestations regarding the adoption, implementation, or upgrade to a certified EHR technology (CEHRT); in subsequent participation years, providers must demonstrate meaningful use of that CEHRT. To demonstrate meaningful use of CEHRT, CMS will collect attestations from Medicare participants and dually eligible EHs and states will collect attestations from Medicaid-only participants. Dually-eligible NC EHs that successfully attest with Medicare will be deemed eligible to receive a NC Medicaid payment; in these cases, CMS will send the EH attestation data to NC via a *C-5 interface*.

The NC-MIPS Operations Team and various internal departments at the Division of Medical Assistance (DMA) verify attested data through a series of validation checks. Upon successful attestation and validation, NC checks with CMS before granting final approval to pay the specific EP or EH via a *D-16 interface* and CMS confirms approval to pay via a *D-16 response file*.

3. Payment and Settlement

Although it has been determined that NC-MIPS is correctly calculating incentive payments for EPs, the NC-MIPS Operations Team and DMA staff continue to perform some manual steps to verify the accuracy of payment calculations and assignments. In addition, checks are in place to ensure that maximum payment amounts are not exceeded and duplicate payments are not issued.

CMS provides funding to NC for the incentive payments through the grants process. After qualification is determined and CMS has issued final approval, NC delivers the incentive payments to EPs and EHs and notifies CMS that payment has been issued. In the case where a provider owes a balance to Medicaid, that amount is withheld from the provider's incentive payment.

As of mid-2011, payments have been made through the Legacy MMIS+ system via electronic funds transfer (now the required method of payment for all Medicaid providers). A payment type will be created for incentive payments to be delivered by the Replacement MMIS when the systems are integrated in 2013.

4. Management of Post-Payment Operations

NC will manage an appeals process, largely in DMA Provider Services, that parallels the current process for provider claim payments. The anticipated categories for appeal are:

- Denial of incentive payment due to ineligibility.
- Appeal of incentive payment amount.
- Denial based on failure to demonstrate A/I/U or meaningful use of CEHRT.

The auditing function, as described in *Section D*, will implement pre- and post-payment controls to prevent and detect fraud, waste, and abuse. There are three tenets of the early DMA audit strategy related to the EHR incentive program:

4. DMA will avoid making improper payments by ensuring that payments only go to eligible professionals and hospitals, and that payments meet all incentive funding requirements.
5. DMA will review and validate demonstration of meaningful use of CEHRT through a combination of monitoring/validation activities before payments are disbursed and selective audits after payments are disbursed.
6. DMA will prevent/identify suspected fraud and abuse through data analysis and selected provider audits.

Post-payment audit functions for A/I/U in 2011 and the first half of 2012 will focus on:

- Provider Eligibility: verification that providers are Medicaid-enrolled, credentialed, not sanctioned, not hospital-based, practicing predominantly (for FQHCs/RHCs), and are one of the eligible provider types under the EHR Incentive Programs.
- Patient Volume: audit of attested Medicaid and full practice volumes, including use of proxy data (such as claims) where appropriate.
- Adopt, implement, or upgrade: audit that one of these three was accomplished with a CEHRT.

5. Provider Support

The NC-MIPS Operations Team at the existing CSC Enrollment, Verification, and Credentialing (EVC) Call Center supports a helpdesk service/call center to assist EHR Incentive Program participants with registration and attestation. Additional staff, changes to call routing, and additional call tracking capability were added to the EVC Call Center to accommodate this program. Additionally, the DMA Health Information Technology (HIT) Team supports providers for general program and policy questions through a dedicated e-mail and phone line.

In order to promote a smooth program implementation with NC providers, the DMA HIT Team is developing a comprehensive Communication Plan. The Plan includes extensive analysis and recommendations for provider outreach, including a host of methods to communicate with providers about the State's plans and resources to assist in EHR acquisition and implementation and to provide information on the registration and attestation processes to receive incentive payments.

6. Reporting

The HITECH Act does not require NC to post the name and business address of Medicaid EPs and EHs that received incentive payments to a public website, as required by CMS for Medicare incentives. As of January 2012, North Carolina does not plan to publicly post information on paid providers. NC may consider posting this information in later years.

NC DHHS and the DMA HIT Team utilize various NC-MIPS reports to manage the program, satisfy CMS reporting requirements, monitor and forecast payments for future years, and provide information to NC Medicaid auditors. The Legacy MMIS+ fiscal agent currently provides, and will continue to provide, 1099 reporting until the Replacement MMIS is implemented.

Technical Requirements

NC-MIPS is a stand-alone system that ingests information from multiple external systems, including: 1) EVC for provider data; 2) the Legacy MMIS+ data warehouse (DRIVE) for claims information; and 3) a database separate from existing Medicaid provider data. The solution was built based on a Service Oriented Architecture (SOA) approach, so that services are created to work with both the current Medicaid Enrollment System and with the Replacement MMIS system upon implementation.

NC-MIPS was built and continues to be modified using the Replacement MMIS architecture and design principles to minimize the amount of work necessary to integrate these two systems in 2013. The provider portal for attestation is part of the current NCTracks website and was designed with the same user interface standards and style/design of the forthcoming Replacement MMIS. The two systems use the same security architecture, which is based on the North Carolina Identity Management (NCID) state standard.

Phases of NC-MIPS

To enable the State to meet aggressive deadlines for interface testing with CMS, to accommodate requirements and technical details that are changing rapidly, and to allow providers to attest for and receive incentive payments as soon as possible in 2011, the design and development of the NC-MIPS sub-system has been broken down into multiple phases.

Phase 1 of NC-MIPS was launched in January 2011, and allowed providers to register with NC-MIPS. This release also included the functionalities necessary to interface with CMS through the *B-6 and B-7 interfaces*. Phase 2 of the system was released in March, 2011 and allowed providers to attest to A/I/U of CEHRT as outlined in the Final Rule governing the program. This phase included the establishment of a provider portal that allowed for annual attestation and tracking attestation and payment status, as well as deployment of the *B-7, D-16* and *D-18 interfaces*. Phase 3 of the system was released in September, 2011 to augment the level of automation involved in the attestation validation functionality.

Phase 4 of NC-MIPS is expected to be deployed in various releases from late spring through the summer of 2012, and will allow management of meaningful use reporting and enhanced registration and attestation workflow functionality. Phase 5 will be to integrate NC-MIPS into the Replacement MMIS in 2013. NC will continue to add system features during 2012 and beyond to accommodate program needs.

Table 21 below presents the CMS criteria for readiness to launch the Medicaid EHR Incentive Program as outlined in the State Medicaid Directors Letter dated August 17, 2010, as well as the corresponding NC actions taken to prepare for the initial launch of NC-MIPS.

Table 21 - CMS Criteria for NC-MIPS Readiness Launch

Criteria	Status
The State has an approved SMHP and an approved I-APD.	SMHP and I-APD approved in December 2010.
The State has initiated outreach and communications about the Medicaid EHR Incentive Program, including posting information on its website.	Complete; see http://www.ncdhhs.gov/healthit/
The State has an effective and tested interface to accept provider registration information from CMS.	North Carolina is the first state to test with CMS starting August 2010.
The State is now capable, or will be capable within 3 months, of accepting provider attestations.	Provider registration opened in January 2011; provider attestation opened in March 2011.
The State is now capable, or will be capable within 5 months, of making incentive payments to providers.	First provider incentive payments made in March 2011.

Tables 22, 23, and 24 below present the timing of the nuts and bolts behind the business process, organizational, application, data, and technological domains of NC-MIPS development.

Table 22 - Business Process and Organizational Domains

	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Business process: work activities					
Registration	✓	✓	✓	✓	✓
Attestation and Qualification		✓	✓	✓	✓
Interfaces with NLR	✓	✓	✓	✓	✓
Payment Calculation and Interface with NCAS, then MMIS		✓	✓	✓	✓
Manage Post Payment Operations – Appeals and Audit			✓	✓	✓
Help Desk Service (Customer Support)	✓	✓	✓	✓	✓
Reporting	✓	✓	✓	✓	✓
Provider Outreach	✓	✓	✓	✓	✓
SMHP continued development	✓	✓	✓	✓	✓
Coordination with State HIE	✓	✓	✓	✓	✓
Quality reporting and storage for Meaningful Use				✓	✓
Consumer Outreach				✓	✓
Organizational: people, teams, departments					
Within NC DHHS and other State offices:					
1. OMMIS – Project Management	✓	✓	✓	✓	✓
2. Medicaid Division of Medical Assistance	✓	✓	✓	✓	✓
3. Medicaid Audit					
4. Medicaid Operations		✓	✓	✓	✓
NC HIE					
N3CN			✓	✓	✓
AHEC	✓	✓	✓	✓	✓
Current Enrollment and new MMIS System contract:					
1. CSC Team supporting MMIS development	✓	✓	✓	✓	✓
2. CSC Data Center	✓	✓	✓		
3. Quarterline Consulting (EVC support)	✓	✓	✓	✓	✓
CSC Enrollment Service Center	✓	✓	✓	✓	✓
NC Providers	✓	✓	✓	✓	✓
CMS National Level Repository	✓	✓	✓	✓	✓
NC Medicaid Patients	✓	✓	✓	✓	✓

Table 23 - Application and Data Domains

	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5

Application: business software applications					
Current Medicaid Provider Enrollment System (EVC)	✓	✓	✓	✓	✓
Replacement MMIS System					✓
CMS National Level Repository	✓	✓	✓	✓	✓
North Carolina NCAS Accounts Payable		✓	✓	✓	✓
Telephone switch/automated call distribution (ACD) reporting	✓	✓	✓	✓	✓
Data: data items, structures, relationships and business rules for information					
EVC provider enrollment information	✓	✓	✓	✓	✓
New data elements for provider registration, attestation, payment calculation and tracking	✓	✓	✓	✓	✓
Complete audit of all activities and interfaces in process scope	✓	✓	✓	✓	✓
CMS National Level Repository	✓	✓	✓	✓	✓
NC Medicaid providers	✓	✓	✓	✓	✓
CMS Hospital cost report data				✓	✓
Medicaid annual cost report extract for hospitals (Medicaid days, managed care days, total inpatient days, total charges, charity care charges, Medicaid discharge numbers, managed care discharges)	✓	✓	✓	✓	✓
New MMIS database					✓
DRIVE claims data warehouse	✓	✓	✓	✓	
New Medicaid data warehouse					✓
Sanction Data		✓	✓	✓	✓
Recoupment Data		✓	✓	✓	✓
Meaningful Use Quality Measurements				✓	✓

Table 24 - Technological Domains

	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Technological: hardware, system software, communication components, and development tools					
Service Oriented Architecture (SOA)	✓	✓	✓	✓	✓
Components compatible with J2EE MMIS architecture		✓	✓	✓	✓
Gentran Windows version	✓	✓	✓	✓	✓

Pegasystems for workflow/queuing		✓	✓		
MS SQL	✓	✓	✓	✓	✓
DB2			✓	✓	✓
Web page design consistent with Replacement MMIS			✓	✓	✓
NCID		✓	✓	✓	✓
.NET	✓	✓	✓	✓	✓
J2EE			✓	✓	✓

System Life

NC-MIPS was designed to allow the system to be fully integrated with the Replacement MMIS Service Oriented Architecture (SOA) upon its release. The systems were designed in parallel to meet State-defined timeframes for early NC participation in the Medicaid EHR Incentive Program, but with careful planning to facilitate future integration. The major change in the system upon integration will be the provider data source moving from the interim solution to the Replacement MMIS provider module. The methodology for this integration will be to link the systems via web services and change the data sources. This transition will be in coordination with the Replacement MMIS implementation. Routine operations, maintenance, and system updates are scheduled for the life of the system. NC-MIPS is scheduled to be supported through 2021. Prior to that date, plans for its decommissioning will be developed.

C.4.2 NC-MIPS and MMIS

North Carolina is currently in the process of implementing a Replacement MMIS with a go-live date of July 2013. NC-MIPS was built for later compatibility with the Replacement MMIS; however, NC-MIPS currently interfaces with the Legacy MMIS to deliver incentive payments through the same mode as other Medicaid financial processing—via secure file transfer process (SFTP) on the check-write cycle for claims. This cycle distributes payments every 1-2 weeks. MMIS includes these payments in their financial documentation (e.g., 1099 reporting) and responds with a weekly payment file to NC-MIPS. In late 2012, NC-MIPS will be modified to accommodate interfaces to the Replacement MMIS.

NC-MIPS also utilizes the current claims data warehouse to validate the Medicaid patient volume requirement for both EPs and EHs.

C.4.3 Interface with NLR

The CMS National Level Repository (NLR) stores data and controls interfaces necessary to implement the EHR Incentive Programs at the national level. North Carolina and other states use the NLR to coordinate Medicaid EHR Incentive Program activity with CMS. This coordination is managed through specifications laid out in the CMS Interface Control document. NC participates in the following defined interfaces:

- Interface B-6 (NLR to State): Provider Registration Data
    - All hospitals and professionals applying for incentives must first register with the CMS NLR. With minor variations based on provider type, the NLR captures basic information such as demographics, payee information, and program selection (Medicare, Medicaid, or both). It checks for valid NPI, hospital CCN, TIN, and any sanctions. Professionals opting to attest with Medicaid and hospitals opting to attest with Medicaid or claiming dual Medicaid/Medicare eligibility are passed to the State as part of a daily registration batch B-6 interface if they have no federal sanctions.

  - During the registration process, CMS supplies the professional or hospital with a URL to their state's SLR website which will permit continuation of the registration and attestation process. Providers are instructed to check the website after a 24-hour window, providing time for the NLR to communicate to the state and for the state to begin processing the registration.

- Interface B-7 (State to NLR): Registration Confirmation Data
  - After a B-6 is processed and the provider enters registration data, patient volume data, and meaningful use data (when applicable), an eligibility response is returned from the state to the NLR. If the provider is not found in the state's registry of professionals and hospitals, or if any other verification fails, the NLR is notified that the provider is not eligible. Eligibility responses are communicated to the NLR in daily registration B-7 response batches.

- Interface C-5 (NLR to State): Dually Eligible Hospital Attestation Data
  - For EHs who choose to participate in both the Medicare and Medicaid EHR Incentive Programs (those who are "dually eligible"), CMS sends Medicare attestation data to the states from the NLR.

- Interface D-16 (State to NLR): Duplicate Payment Exclusion Check
  - To avoid duplicate payments and making payments to federally sanctioned professionals and hospitals, NC-MIPS notifies the NLR when it intends to make a payment. These notifications are performed in accordance with specifications in the CMS Interface Control document. NC-MIPS waits for a response from the NLR before making a payment. The State assumes that the NLR will lock the specific provider records before sending the response back to the State, and that the lock will remain in effect until the State notifies the NLR that payment has been issued.

- Interface D-17 (State to NLR): Dually Eligible Hospital Cost Report Data
  - For EHs who choose to participate in both the Medicare and Medicaid EHR Incentive Programs, DMA's Finance Unit currently supplies hospital cost report data for use in NC-MIPS. In the future, it is expected that CMS will send hospital cost report data to the states from the NLR.

- Interface D-18 (State to NLR): Incentive Payment Data
  - NC-MIPS transmits payment details to the NLR as specified in the CMS Interface Control Document after a payment has been made.

To support the interfaces, North Carolina configured Windows Service to invoke an FTPS client (curl) to connect to the CMS Gentran server farm to send/retrieve the appropriate files on a daily basis during a configurable window. A combination of certificates and username/password credentials ensures the connection is appropriately made with the FTPS protocol, and ensures the data is transported securely. If the file has not been found at CMS or is unable to be sent to CMS by a configurable number of minutes after the end of the scheduled window, an exception is raised to operations to conduct follow up.

Upon receipt of a file, North Carolina:

- Uses material specified in the CMS Interface Control document to determine how the file should be processed;

- Validates the file retrieved against the XML schema provided in the CMS Interface Control document;

- Performs a series of additional validations to ensure the file integrity (e.g., verify transaction count, that files are not being processed out of order, etc.); and
- Individually processes the transactions.

As the CMS initial testing partner, North Carolina successfully tested connectivity and the ability to send and retrieve files using the methodology described above in March 2011.

C.4.4 INTERFACE WITH NC MEDICAID ENROLLMENT, VERIFICATION, AND CREDENTIALING (EVC)

DHHS DMA Provider Services validates the Office of the Inspector General (OIG) exclusion listing on a continual basis and monitors providers who have DMA Provider Integrity and Medicaid Fraud Control Unit (MFCU) legal actions imposed. Immediately upon notification of a sanction or exclusion, providers are notified and removed from the Medicaid program.

In response to the FY 2008 Medicaid Integrity Group's Comprehensive Medicaid Program Integrity Review, DMA has addressed vulnerabilities. In October 2008, a business rule was developed to verify out-of-state provider licenses prior to enrolling in the NC Medicaid program. Since January 2009, the Provider Enrollment Application has been modified and updated to require disclosure of managing employee information. In April 2009, as part of early operations, the provider database (EVC system) began capturing owners, officers, and managing employees in addition to providers.

In accordance with NC-MIPS Operations Business Rule and Desk Procedures, a provider eligibility check (active, licensed, and qualified) will be conducted during the attestation validation phase, prior to the payment. Once NLR registration data is received, the first step is to match the data to a known professional or hospital in the State registry. NC-MIPS will query the EVC via a web service for possible hospital or provider matches. Staff will then review both sets of data and assign a "match" or "no match" designation. This process requires that:

- TIN and NPI data from both systems match
- Names and addresses from both systems match
- Provider type and specialties to match via a crosswalk mapping

The goal of this manual process is to facilitate outreach to eligible professionals and hospitals to ensure the accuracy of their NLR and NC Medicaid records. If ultimately a match is not found at the state level for a particular CMS registration, this will be included in the registration confirmation batch returned to the NLR with a status of "ineligible."

A web service supports use of EVC's Filenet for transmission, storage, and retrieval of faxed or scanned images of supporting attestation documentation. As Filenet will be used in the Replacement MMIS, this system was put in place to minimize integration efforts when the Replacement MMIS comes online. Call center interactions will also be stored and tracked in EVC. For audit purposes, decisions made or actions taken on provider eligibility and payment will be stored in NC-MIPS. These capabilities will eventually roll into the Replacement MMIS's CRM features. Advance coordination with the Replacement MMIS team is designed to minimize the transition effort.

C.4.5 Provider Portal (NC Tracks)

North Carolina's Medicaid program operates a provider portal called NC Tracks. In addition to providing educational information about the Medicaid EHR Incentive Program, NC Tracks also shares a secure link to NC-MIPS. Through NC Tracks, EPs and EHs establish accounts for the EHR Incentive Program, and register and attest for a payment. The process includes the following steps:

1. Provider registers with the NLR, is deemed eligible by CMS, and receives the NC Tracks/NC-MIPS URL.

2. Provider goes to NC Tracks/NC-MIPS portal homepage.
3. New users are prompted to create an account using the same NPI, TIN, and other data provided to the NLR.
4. Provider is requested to submit detailed contact information, provider type-specific encounter volume information, and A/I/U or MU attestation.

North Carolina restricts registration and attestation to a single account per NPI and TIN combination.

C.4.6 Other Systems

C.4.6.1 Social Security Death Master File (SSDMF)

The CMS NLR will interface with the SSDMF at the time of registration and again pre-payment to verify that the provider is not deceased.

C.4.6.2 Claims Repository

NC-MIPS interfaces with a claims repository extracted from the State's current Medicaid claims reporting database to verify attested EP patient volume data. This MMIS data warehouse also houses data for state sanctions, recoupment status, and payee assignments, which will be used as needed by NC-MIPS.

Claims data is used to verify reported patient volume data to qualify EPs and EHs for the EHR Incentive Program. Hospital cost report data is used in the eligibility and payment calculations to verify EH eligibility. The State researches unexplained differences between provider-supplied and repository data, and performs outreach to reconcile differences or determine ineligibility. As eligibility determinations are made, snapshots of relevant summary claims data are maintained in NC-MIPS for audit purposes.

C.5 ATTESTATION AND PAYMENT

Providers must attest that all the data supplied to the State is accurate prior to payment. The attestation finalizes the verifications described in C.3 to ensure compliance with the Final Rule's conditions for receiving incentive payments. The steps required to complete the incentive payment process include:

- Attestation
- Calculating the payment amount
- Coordinating with the NLR, as described in C.4.2
- Following state payment processes

C.5.1 Attestation

After provider data has been collected, providers attest to the veracity of the information provided and their qualification according to program rules. They then submit the data and attestation electronically and mail/fax a signed copy for verification. The attestation page of the portal includes the CMS-provided language directly above the provider's signature:

> *"This is to certify that the foregoing information is true, accurate, and complete. I understand that Medicaid EHR incentive payments submitted under this provider number will be from Federal funds, and that any falsification, or concealment of a material fact may be prosecuted under Federal and State laws."*

The attestation process also requires professionals and hospitals to acknowledge this warning of the potential for prosecution:

Concealment or falsification of material facts regarding incentive payments can result in Medicaid Provider Payment suspension, civil prosecution pursuant to the False Claims Act (31 USC 3729-3733), Medical Assistance Provider Fraud (N.C.G.S. 108A-63), Medical Assistance Provider False Claims Act (N.C.G.S. 108A-70.10 to 70-16), the North Carolina False Claims Act (N.C.G.S. 1-605 to 1-618), and/or criminal prosecution pursuant to criminal fraud statutes of North Carolina.

C.5.2 Payment Calculation for Eligible Professionals

Once an EP is deemed eligible to receive an incentive payment, that EP or their designated payee is paid in accordance with the amounts and schedule set forth by CMS. CMS has stipulated standard incentive payment amounts and a schedule for their distribution for all EPs participating in the Medicaid EHR Incentive Program based on a model of sharing the cost of implementing CEHRT. Initially, the Final Rule required that an EP demonstrate a contribution of 15 percent of the net average allowable cost of implementing CEHRT. In April 2011, CMS advised that as long as states can verify that no more than 85 percent of the net average allowable cost was paid to the provider in the form of an incentive payment (these amounts fixed, below), an EP is assumed to have met the remaining 15 percent of the cost, and need not furnish documentation to this end.

The maximum total incentive available for an EP over six years of participation in the program is $63,750. The maximum total incentive available for a pediatrician qualifying under the special 20 percent Medicaid patient volume rule is $42,500.

Table 25 – Payment Schedule for EPs

Payment Year	EP qualifying with 30% Medicaid patient volume	Pediatrician qualifying under the 20% Medicaid patient volume rule
Year 1	$21,250	$14,167
Year 2	$8,500	$5,667
Year 3	$8,500	$5,667
Year 4	$8,500	$5,667
Year 5	$8,500	$5,667
Year 6	$8,500	$5,665
Total Incentive	**$63,750**	**$42,500**

Medicaid providers are not required to participate on a consecutive, annual basis; however, the last year an EP may begin participation is 2016, with the program ending in 2021. Unlike Medicare, the NC Medicaid EHR Incentive Program does not include a future reimbursement rate reduction for claims submitted by non-participating Medicaid providers.

C.5.3 Payment Calculation for Eligible Hospitals

Pursuant to the Final Rule 75 FR 44314, payment to eligible hospitals shall be based on discharges using the average annual growth rate for an individual hospital over the most recent three years of available data from an auditable data source. As a standard, North Carolina has adopted the use of four

consecutive periods of full 12-month Medicaid cost report data under a single CMS Certification Number (CCN) to calculate an average annual growth rate over three years. Attestation of cost report data must correspond to the Medicare CCN number registered with CMS for the eligible hospital submitting the attestation.

Definitions:

- **First Payment Year:** 75 FR 44314 defines an eligible hospital's First Payment Year as the first federal fiscal year they successfully demonstrate that they were a meaningful EHR user for *the EHR reporting period for the payment year.* Eligible hospitals must review their number of consecutive 12-month Medicaid cost reporting periods under a single CMS Certification Number (CCN) in accordance with provisions below to determine their eligible First Payment Year under the standard payment calculation (see *Section C.5.3.1 Standard Payment Calculation*) or alternate payment calculation (see *Section C.5.3.2 Alternate Payment Calculation*).

- **Base Year:** North Carolina defines an eligible hospital's Base Year as the "EHR reporting period for the first payment year." The Base Year represents the 12-month period for the hospital's latest filed 12-month Medicaid cost report that ended in the Federal Fiscal Year before the eligible hospital's First Payment Year.

    - Example: FFY12 begins on October 1, 2011 and ends on September 30, 2012. Eligible hospitals whose First Payment Year is FFY12, with 12-month cost reporting periods ending on or before September 30, 2011, must use their FY11 (or latest filed) cost report as their Base Year. Eligible hospitals with 12-month cost reporting periods ending on or after October 1, 2011 must use their FY10 (or latest filed) Medicaid cost report as their Base Year. Once a Base Year is determined, it does not change under standard payment calculation (see *Section C.5.3.1 Standard Payment Calculation*) or alternate payment calculation (see *Section C.5.3.2 Alternate Payment Calculation*).

- **Tail Period:** North Carolina mirrored Medicare's adoption of a 60-day "tail period" to allow for attestation for a given year beyond the end of that year. The tail period for EHs is defined as a period of time beyond the end of the Fiscal Year during which EHs may attest for the prior payment year.

    - Example: 2011 attestations may be submitted 60 days beyond the end of FY11, resulting in a deadline of November 30, 2011. This extension means that a November 15, 2011 attestation date will result in a 2011 Base Year. Thus, hospitals who are eligible for 2011 to be their First Payment Year and who submit their EHR attestation between October 1, 2011 and November 30, 2011 are considered to have attested within the Federal Fiscal Year 2011. Consequently, hospitals who are eligible for 2011 to be their First Payment Year and who submit their EHR attestation after November 30, 2011 are considered to have attested within the Federal Fiscal Year 2012, resulting in a 2012 Base Year.

The following steps are used to determine the North Carolina Medicaid EHR Incentive Payment for eligible hospitals with four or more consecutive 12-month cost reporting periods under a single CMS Certification Number (CCN). If a provider has less than four consecutive 12-month cost reporting periods under a single CCN or has had a new enrollment, change of ownership (CHOW), merger, or divestiture of acute care inpatient beds, refer to *Section C.5.3.2 Alternate Payment Calculation* for the eligible hospital payment calculation.

C.5.3.1 Standard Payment Calculation

Step 1: Determine the Average Annual Growth Rate for the last three years

The average annual growth will be computed by averaging the annual percentage change in total patient discharges over the most recent three years of available data from 12 month hospital cost reports (MCRIF32) prior to the most current fiscal year. This information will be obtained from Total Patient

discharge amounts in worksheet S-3, Part I, Line 12, Col 15 for the applicable FYs at the time of the calculation.

Example:
Total Patient discharges in worksheet S-3, Part I, Line 12, Col 15 for FY 2010, 2009, 2008, 2007 are shown in the chart below.

DGY3, DGY2, DGY1 will represent Discharge Growth 3 years ago, 2 years ago, and prior year respectively.

DGY3 = (Total Discharges FY08 – Total Discharges FY07)/Total Discharges FY07
DGY2 = (Total Discharges FY09 – Total Discharges FY08)/Total Discharges FY08
DGY1 = (Total Discharges FY10 – Total Discharges FY09)/Total Discharges FY09

Average Annual Growth rate = (DGY3+DGY2+DGY1) / 3

Table 26 – Hospital Calculation Growth Rate Example

Total Discharges	FYB	FYE	W/S S-3, Part I, Line 12, Col 15	Prior Year	Current Year	Increase / (Decrease)	Growth Rate
3rd Prior Year	10/1/2006	9/30/2007	7,246				
2nd Prior Year	10/1/2007	9/30/2008	6,657	7,246	6,657	(589)	-8.1286%
1st Prior Year	10/1/2008	9/30/2009	5,720	6,657	5,720	(937)	-14.0754%
Current	10/1/2009	9/30/2010	5,456	5,720	5,456	(264)	-4.6154%
				Total Increase / (Decrease)			-26.8194%
				Average 3 Year Growth Rate			**-8.9398%**

In this example, when FY 2011 data becomes available, FY 2007 data would not be used and FY 2011, 2010, 2009, and 2008 cost report data would be used.

Note that if the average annual growth rate is negative over the 3-year period, it is applied as such.

Step 2a: Determine Projected Total Discharges

North Carolina will utilize the most recent year 12 month period hospital cost report data from MCRIF32 and the Annual Average Growth Rate from Step 1 to project Total Discharges for Year 2, Year 3, and Year 4. Projected Discharge figures will be rounded to the nearest whole number.

- Current Year – The Data Source is worksheet S-3 Part 1, Line 12, Col. 15

  Example: **5,456** Current Year Total Discharges

- Year 2 Projected = [Number of discharges in Current Year * (1 + Average Annual Growth Rate)]

  Example: [5,456 * (1 + (-0.089398)] = **4,968**

- Year 3 Projected = [Year 2 Projected * (1 + Average Annual Growth Rate)]

  Example: [4,968 *(1 + (-0.089398)] = **4,524**

Year 4 Projected = Year 3 Projected * (1+ Average Annual Growth Rate)

Example: [4,524 * (1 + (-0.089398)] = **4,120**

Step 2b: Calculating the Total Discharge Related Amount

The Overall Electronic Health Record Amount includes a discharge related amount of an additional $200 per projected discharges between 1,150 and 23,000 discharges. No amount is calculated for discharges prior to the 1,150th discharge or for discharges after the 23,000th discharge.

The following formula will be utilized to calculate the discharge related amount for years 1 through 4.

Discharge related amount for Year 1 = (Current Year Projected Discharges under 23,000 – 1149) * $200

Discharge related amount for Year 2 = (Year 2 projected discharges under 23,000 – 1149) * $200

Discharge related amount for Year 3 = (Year 3 projected discharges under 23,000 – 1149) * $200

Discharge related amount for Year 4 = (Year 4 projected discharges under 23,000 – 1149) * $200

Table 27 – Hospital Calculation Total Discharge Amount Example

Year	Per Discharge Amount	Projected Total Discharges	Disallowed Discharges	Allowable Discharges	Amount
Year 1	$200	5,456	1,149	4,307	$861,400
Year 2	$200	4,968	1,149	3,819	$763,800
Year 3	$200	4,524	1,149	3,375	$675,000
Year 4	$200	4,120	1,149	2,971	$594,200
Total Discharge Related Amount					**$2,894,400**

Step 3: Calculate the Initial EHR Amount for 4 Years

The Initial Amount is = a base amount of $2,000,000 + the total discharge related amount for each year.

Table 28 – Hospital Calculation Aggregate EHR Amount Example

Calculate Initial Amount	Year 1	Year 2	Year 3	Year 4
Base Amount	$2,000,000	$2,000,000	$2,000,000	$2,000,000
Discharge Related Amount	$861,400	$763,800	$675,000	$594,200
Aggregate EHR Amount	$2,861,400	$2,763,800	$2,675,000	$2,594,200

Step 4: Apply the Medicaid Transition Factor for Each of the 4 Years

Transition Factor Year 1 = 1.00

Transition Factor Year 2 = 0.75

Transition Factor Year 3 = 0.50

Transition Factor Year 4 = 0.25

Table 29 – Hospital Calculation Medicaid Transition Factor Example

	Year 1	Year 2	Year 3	Year 4
Aggregate EHR	$ 2,861,400	$ 2,763,800	$ 2,675,000	$ 2,594,200
Transition Factor	1.00	0.75	0.50	0.25
Applied Amount	$ 2,861,400	$ 2,072,850	$ 1,337,500	$ 648,550

Step 5: Calculate the Overall EHR Amount for 4 Years

Add the Aggregate EHR Amount for all four years after application of the Transition Factor.

Table 30 – Hospital Calculation Overall EHR Amount Example

Year 1	$ 2,861,400
Year 2	$ 2,072,850
Year 3	$ 1,337,500
Year 4	$ 648,550
Total	$ 6,920,300

Step 6: Calculate the Medicaid Share of the Overall EHR Amount for 4 Years

The Medicaid share shall be calculated using the most current 12-month period from the hospital cost report data on MCRIF32:

The Medicaid share will be calculated as the numerator (M + N) divided by the denominator (P times the product of Q minus R divided by Q)

- Numerator = **M** + **N**

  M = Number of inpatient-bed days of Medicaid individuals; Source is worksheet S-3, Part I, Col 5, Line 1 plus Lines 6 through 10 of most recent fiscal year cost report.

  The Source of Medicaid inpatient bed days will change in the new CMS 2552-10 cost report effective for 12 month cost report periods beginning on or after May 1, 2010. In the CMS 2552-10, the source for Medicaid inpatient bed-days will be Worksheet S-3, Part I, Col 7, Line 1 plus Lines 8 through 12.

  N = Number of inpatient-bed-days of Medicaid individuals enrolled in a managed care organization, a pre-paid inpatient health plan, or a pre-paid ambulatory health plan; Source is worksheet S-3, Part I, Col 5, Line 2 of most recent fiscal year cost report.

  The Source of Medicaid inpatient bed-days enrolled in a HMO will change in the new CMS 2552-10 cost report effective for 12 month cost report periods beginning on or after May 1, 2010. In the CMS 2552-10, the source for Medicaid HMO inpatient bed-days will be Worksheet S-3, Part I, Col 7, Line 2.

- Denominator = **P** *((**Q** – **R**) / **Q**)

  P = Total amount of eligible hospitals' inpatient bed days over selected period; Source is worksheet S-3, Part I, Col 6, Line 1, plus Line 2 plus Lines 6 through 10 of most recent fiscal year cost report.

  The Source for total inpatient bed-days will change in the new CMS 2552-10 cost report effective for 12 month cost report periods beginning on or after May 1, 2010. In the CMS 2552-10, the source for total inpatient bed days will be Worksheet S-3, Part I, Col 8, Line 1 plus Line 2 plus Lines 8 through 12.

Q = Total amount of eligible hospital's charges; Source is worksheet C, Part I, Line 101, Col. 8 of most recent fiscal year cost report.

The Source for total amount of eligible charges will change in the new CMS 2552-10 cost report effective for 12 month cost report periods beginning on or after May 1, 2010. In the CMS 2552-10, the source for total eligible charges will be Worksheet C, Part I, Line 200, Col 8.

R = Charges attributable to charity care; Source is EH Attestation.

The Source of charges attributable to charity care will change in the new CMS 2552-10 cost report effective for 12 month cost report periods beginning on or after May 1, 2010. In the CMS 2552-10, the source will be Worksheet S-10, Column 3, Line 20.

Table 31 – Hospital Calculation Medicaid Share Example

M	Total Medicaid Inpatient Bed Days	2,749	
N	Total Medicaid Managed Care Inpatient Bed Days	0	
Numerator (M+N)	Total Medicaid and Managed Care Inpatient Days		2,749
Q	Total Hospital Charges	232,903,632	
R	Total Charity Care / Uncompensated Care Charges	4,767,979	
Q minus R	Total Hospital Charges Less Charity Care Charges	228,135,653	
Q-R/Q	Non - Charity Care Percentage	0.979528104	
P	Total Hospital Inpatient Bed Days	22,621	
Denominator	Total Non-Charity Hospital Inpatient Bed Days		22,158
Medicaid Share			**0.124064074**

Step 7: Calculate the Medicaid Aggregate EHR Incentive Payment Amount

Aggregate EHR payment = Medicaid Share (Step 6) * Overall EHR Amount (Step 5)

Table 32 – Hospital Calculation Aggregate Share Example

Overall EHR Amount for 4 Years	$ 6,920,300
Medicaid Share	0.124064074
Medicaid Aggregate EHR Incentive Payment Amount (to be paid over a 3 year period)	$ 858,560.61

Step 8: Calculate the Annual EHR Incentive Payment Amount

Payments will be made over a 3 year period for the Overall EHR amount with Year 1 payment at 50 percent, Year 2 payment at 40 percent, and Year 3 payment at 10 percent.

Table 33 - Hospital Calculation Annual EHR Incentive Payment Example

Payment Year	Percentage	Payment
Year 1 Payment	50%	$ 429,280.31
Year 2 Payment	40%	$ 343,424.24
Year 3 Payment	10%	$ 85,856.06
Year 4 Payment	0%	$ 0
Total		**$ 858,561.61**

C.5.3.2 Alternate Payment Calculation

Payment calculation for EHs with less than four consecutive 12-month cost reporting periods under a single CCN (new provider, change of ownership (CHOW), merger, or divestiture of acute care inpatient beds)

Eligible hospitals with less than four consecutive 12-month cost reporting periods under a single CCN must have a minimum of **two** consecutive 12-month cost reporting periods under a single CCN, subject to the provisions in this Section regarding new providers, CHOWs, mergers, and divestitures before they can attest for a First Payment Year. The minimum two consecutive 12-month cost reporting periods under a single CCN must be full cost reporting periods which occur after the cost reporting year in which the new enrollment, CHOW, merger, or divestiture occurred. For example, an eligible hospital has a September 30 year end cost reporting period but changed ownership July 1, 2008. The new owner must use the two cost reporting periods of October 1, 2008 – September 30, 2009 and October 1, 2009 - September 30, 2010 as the minimum consecutive full 12-month cost reporting periods. Assuming the eligible hospital met all other eligibility requirements, they could attest in 2011 for their First Payment Year and use their FY10 cost report as the Base Year. The cost reporting period ended September 30, 2008 (and earlier) may not be included in the alternate payment calculation.

The First Payment Year calculation will be made using the eligible hospital's Base Year cost report data and an Average Annual Growth Rate calculated from the (minimum) two consecutive full 12-month cost reporting periods. The Second Payment Year calculation will use the third consecutive full 12-month cost report discharge data to revise the Average Annual Growth Rate. Base Year data shall remain unchanged. Any change in the Aggregate Medicaid EHR Incentive Payment Amount calculation based on the revised Average Annual Growth Rate will be adjusted in the Second Payment Year amount.

First Payment Year and the eligible hospital's corresponding Base Year are defined in *Section C.5.3 Payment Calculation for Eligible Hospitals*.

If a hospital is eligible for 2011 as their First Payment Year under the Alternate Payment Calculation, then the Tail Period defined in *Section C.5.3 Payment Calculation for Eligible Hospitals* applies if the hospital attested between October 1, 2011 and November 30, 2011.

Attestation of cost report data must correspond to the Medicare CCN number registered with CMS for the eligible hospital submitting the attestation.

New hospital providers with less than four consecutive 12-month cost reporting periods under their new CCN shall have the eligible hospital payment calculation in accordance with Section *C.5.3.2 Alternate Payment Calculation*.

Changes of Ownership (CHOWs) shall be defined by 42 C.F.R §489.18.

If a hospital provider has a CHOW which does not result in a change of CCN, and the hospital has four or more consecutive full 12-month cost report periods, the provider shall have the eligible hospital payment calculation in accordance with Section C.5.3, notwithstanding the provisions below for hospitals with mergers and divestitures.

Hospital providers which have a CHOW that results in a change of CCN shall have the eligible hospital payment calculation in accordance with *Section C.5.3.2 Alternate Payment Calculation*.

Mergers are identified in 42 CFR 489.18 and may not result in the change of CCN for the provider absorbing the merged hospital acute care inpatient beds; however, such a merger of acute care inpatient beds will disproportionately skew the calculation of the Average Annual Growth Rate in the year of merger and the subsequent cost report period. Hospitals that have absorbed a merged hospital and have not had a change in CCN shall have the eligible hospital payment calculation in accordance with *Section C.5.3.2 Alternate Payment Calculation*.

For purposes of this document, divestitures are deemed to be hospitals which have divested of one or more licensed acute care beds from their CCN without a change of CCN; this reduction of beds is shown in the hospital's license from Division of Health Service Regulation (DHSR). Such a divestiture will disproportionately skew the calculation of the Average Annual Growth Rate in the year of divestiture and the subsequent cost report period. Hospitals that have divested of acute care inpatient beds and have not had a change in CCN shall have the eligible hospital payment calculation in accordance with *Section C.5.3.2 Alternate Payment Calculation*.

The following steps for Year 1 and Year 2 will be used to determine the North Carolina Medicaid EHR Incentive Payment for eligible hospitals which have less than four consecutive full 12-month cost report periods under a single CCN.

Alternate Payment Calculation - Year 1

Step 1 (Year 1): Determine the Estimated Average Annual Growth Rate

The estimated Average Annual Growth Rate will be computed by averaging the annual percentage change in total patient discharges from the most recent 2 years of available data from the 12 month hospital cost reports (MCRIF32) prior to the First Payment Year. The two full 12 month cost report periods necessary to perform this calculation must be the two full 12 month cost report periods subsequent to the new enrollment, CHOW, merger or divestiture as described above. The 12 month cost report period in which the new enrollment, CHOW, merger, or divestiture occurred may not be used. This information will be obtained from Total Patient discharge amounts in worksheet S-3, Part I, Line 12, Col 15 for the applicable FYs at the time of the calculation.

Example:
Total Patient discharges in worksheet S-3, Part I, Line 12, Col 15 for FY 2011, 2010 are shown in the chart below.

DGY3, DGY2, DGY1 will represent Discharge Growth 3 years ago, 2 years ago, and prior year respectively.

DGY3 = N/A
DGY2 = N/A
DGY1 = (Total Discharges FY11-Total Discharges FY10)/Total Discharges FY10

Average Annual Growth Rate = (DGY1)

Table 34 – Alternate Hospital Calculation Growth Rate Example

Total Discharges	FYB	FYE	W/S S-3, Part I, Line 12,	Prior Year	Current Year	Increase / (Decrease)	Growth Rate

			Col 15				
3rd Prior Year	N/A	N/A	N/A				
2nd Prior Year	N/A	N/A	N/A	N/A	N/A	N/A)	N/A
1st Prior Year	10/1/2009	9/30/2010	8,230	N/A	N/A	N/A	N/A
Base Year	10/1/2010	9/30/2011	8,179	8,230	8,179	(51)	-0.6197%
				Total Increase / (Decrease)			-0.6197%
				Average Annual Growth Rate			**-0.6197%**

(In this example, when FY 2012 data becomes available, FY 2012, 2011, and 2010 cost report data would be used to recalculate the Growth Rate).

Note that if the Average Annual Growth Rate is negative over the 3 year period, it is applied as such.

Step 2a (Year 1): Determine Projected Total Discharges

North Carolina will utilize the Base Year 12 month period hospital cost report data from MCRIF32 and the Annual Average Growth Rate from Step 1 to project Total Discharges for Year 2, Year 3, and Year 4. Projected Discharge figures will be rounded to the nearest whole number.

- Current Year – The Data Source is worksheet S-3 Part 1, Line 12, Col. 15

  Example: **8,179** Base Year Total Discharges

- Year 2 Projected = [Number of discharges in Current Year * (1 + Average Annual Growth Rate)]

  Example: [8,179 * (1 + (-0.06197)] = **8,128**

- Year 3 Projected = [Year 2 Projected * (1 + Average Annual Growth Rate)]

  Example: [8,128 *(1 + (-0.06197)] = **8,078**

Year 4 Projected = Year 3 Projected * (1+ Average Annual Growth Rate)

Example: [8,078 * (1 + (-0.06197)] = **8,028**

Step 2b (Year 1): Calculating the Total Discharge Related Amount

The Overall Electronic Health Record Amount includes a discharge related amount of an additional $200 per projected discharges between 1,150 and 23,000 discharges. No amount is calculated for discharges prior to the 1,150th discharge or for discharges after the 23,000th discharge.

The following formula will be utilized to calculate the discharge related amount for years 1 through 4.

Discharge related amount for Year 1 = (Current Year Projected Discharges under 23,000 – 1149) * $200

Discharge related amount for Year 2 = (Year 2 projected discharges under 23,000 – 1149) * $200

Discharge related amount for Year 3 = (Year 3 projected discharges under 23,000 – 1149) * $200

Discharge related amount for Year 4 = (Year 4 projected discharges under 23,000 – 1149) * $200

Table 35 – Alternate Hospital Calculation Total Discharge Amount Example

	Per Discharge Amount	Projected Total Discharges	Disallowed Discharges	Allowable Discharges	Amount
Year 1	$200	8,179	1,149	7,030	$1,406,000
Year 2	$200	8,128	1,149	6,979	$1,395,800
Year 3	$200	8,078	1,149	6,929	$1,385,800
Year 4	$200	8,028	1,149	6,879	$1,375,800
Total Discharge Related Amount					**$5,563,400**

Step 3 (Year 1): Calculate the Initial EHR Amount for 4 Years

The Initial Amount is = a base amount of $2,000,000 + the total discharge related amount for each year.

Table 36 – Alternate Hospital Calculation Aggregate EHR Amount Example

Calculate Initial Amount	Year 1	Year 2	Year 3	Year 4
Base Amount	$2,000,000	$2,000,000	$2,000,000	$2,000,000
Discharge Related Amount	$1,406,000	$1,395,800	$1,385,800	$1,375,800
Aggregate EHR Amount	**$3,406,000**	**$3,395,800**	**$3,385,800**	**$3,375,800**

Step 4 (Year 1): Apply the Medicaid Transition Factor for Each of the 4 Years

Transition Factor Year 1 = 1.00

Transition Factor Year 2 = 0.75

Transition Factor Year 3 = 0.50

Transition Factor Year 4 = 0.25

Table 37 – Alternate Hospital Calculation Medicaid Transition Factor Example

	Year 1	Year 2	Year 3	Year 4
Aggregate EHR	$3,406,000	$3,395,800	$3,385,800	$3,375,800
Transition Factor	1.00	0.75	0.50	0.25
Applied Amount	**$3,406,000**	**$2,546,850**	**$1,692,900**	**$843,950**

Step 5 (Year 1): Calculate the Overall EHR Amount for 4 Years

Add the Aggregate EHR Amount for all four years after application of the Transition Factor.

Alternate Hospital Calculation Overall EHR Amount Example

Year 1 $3,406,400

Year 2 $2,546,850

Year 3	$1,692,900
Year 4	$ 843,950
Total	**$8,489,700**

Step 6 (Year 1): Calculate the Medicaid Share of the Overall EHR Amount for 4 Years

The Medicaid share shall be calculated using the Base Year 12-month period from the hospital cost report data on MCRIF32:

The Medicaid share will be calculated as the numerator (M + N) divided by the denominator (P times the product of Q minus R divided by Q)

- Numerator = **M** + **N**

  M = Number of inpatient-bed days of Medicaid individuals; Source is worksheet S-3, Part I, Col 5, Line 1 plus Lines 6 through 10 of the Base Year cost report.

  The Source of Medicaid inpatient bed days will change in the new CMS 2552-10 cost report effective for 12 month cost report periods beginning on or after May 1, 2010. In the CMS 2552-10, the source for Medicaid inpatient bed-days will be Worksheet S-3, Part I, Col 7, Line 1 plus Lines 8 through 12.

  N = Number of inpatient-bed-days of Medicaid individuals enrolled in a managed care organization, a pre-paid inpatient health plan, or a pre-paid ambulatory health plan; Source is worksheet S-3, Part I, Col 5, Line 2 of the Base Year cost report.

  The Source of Medicaid inpatient bed-days enrolled in a HMO will change in the new CMS 2552-10 cost report effective for 12 month cost report periods beginning on or after May 1, 2010. In the CMS 2552-10, the source for Medicaid HMO inpatient bed-days will be Worksheet S-3, Part I, Col 7, Line 2.

- Denominator = **P** *((**Q** – **R**) / **Q**)

  P = Total amount of eligible hospitals' inpatient bed days over selected period; Source is worksheet S-3, Part I, Col 6, Line 1, plus Line 2 plus Lines 6 through 10 of the Base Year cost report.

  The Source for total inpatient bed-days will change in the new CMS 2552-10 cost report effective for 12 month cost report periods beginning on or after May 1, 2010. In the CMS 2552-10, the source for total inpatient bed days will be Worksheet S-3, Part I, Col 8, Line 1 plus Line 2 plus Lines 8 through 12.

  Q = Total amount of eligible hospital's charges; Source is worksheet C, Part I, Line 101, Col. 8 of the Base Year cost report.

  The Source for total amount of eligible charges will change in the new CMS 2552-10 cost report effective for 12 month cost report periods beginning on or after May 1, 2010. In the CMS 2552-10, the source for total eligible charges will be Worksheet C, Part I, Line 200, Col 8.

  R = Charges attributable to charity care; Source is EH Attestation.

  The Source of charges attributable to charity care will change in the new CMS 2552-10 cost report effective for 12 month cost report periods beginning on or after May 1, 2010. In the CMS 2552-10, the source will be Worksheet S-10, Column 3, Line 20.

Table 38 – Alternate Hospital Calculation Medicaid Share Example

M	Total Medicaid Inpatient Bed Days	3,943	
N	Total Medicaid Managed Care Inpatient Bed Days	217	
Numerator (M+N)	Total Medicaid and Managed Care Inpatient Days		4,160
Q	Total Hospital Charges	421,467,997	
R	Total Charity Care / Uncompensated Care Charges	10,000,000	
Q minus R	Total Hospital Charges Less Charity Care Charges	411,467,997	
Q-R/Q	Non - Charity Care Percentage	0.976273406	
P	Total Hospital Inpatient Bed Days	34,433	
Denominator	Total Non-Charity Hospital Inpatient Bed Days		33,616
Medicaid Share			**0.123750513**

Step 7 (Year 1): Calculate the Medicaid Aggregate EHR Incentive Payment Amount

Aggregate EHR payment = Medicaid Share (Step 6) * Overall EHR Amount (Step 5)

Table 39 – Alternate Hospital Calculation Aggregate Share Example

Overall EHR Amount for 4 Years	$8,489,700
Medicaid Share	0.123750513
Medicaid Aggregate EHR Incentive Payment Amount (to be paid over a 3 year period)	**$1,050,605**

Step 8 (Year 1): Calculate the Annual EHR Incentive Payment Amount

Payments will be made over a 3 year period for the Overall EHR amount with Year 1 payment at 50%, Year 2 payment at 40%, and Year 3 payment at 10%.

Table 40 – Alternate Hospital Calculation Annual EHR Incentive Payment Example

Payment Year	Percentage	Payment
Year 1 Payment	50%	$525,302
Year 2 Payment	40%	$420,242
Year 3 Payment	10%	$105,061
Year 4 Payment	0%	$ 0
Total		**$1,050,605**

NOTE: Year 2 and Year 3 payments will be recalculated when the third 12 month cost report is filed and will be adjusted accordingly to insure that the total EHR Incentive Payments to be made are calculated using actual cost report data as filed for 3 consecutive 12 month cost reporting periods.

REVISED CALCULATION – YEAR 2

Step 1 (Year 2): Recalculate the Estimated Average Annual Growth Rate

The estimated average annual growth will be recalculated by averaging the annual percentage change in total patient discharges from the most recent 3 years of available data from the 12 month hospital cost reports (MCRIF32) prior to the year subsequent to the First Payment Year. The three full 12 month cost report periods necessary to perform this calculation must be the three full 12 month cost report periods subsequent to the new enrollment, CHOW, merger or divestiture as described above. The 12 month cost report period in which the new enrollment, CHOW, merger, or divestiture occurred may not be used. This information will be obtained from Total Patient discharge amounts in worksheet S-3, Part I, Line 12, Col 15 for the applicable FYs at the time of the calculation.

Example:
Total Patient discharges in worksheet S-3, Part I, Line 12, Col 15 for FY 2011, 2010 are shown in the chart below.

DGY3, DGY2, DGY1 will represent Discharge Growth 3 years ago, 2 years ago, and prior year respectively

DGY3 = N/A
DGY2 = (Total Discharges FY10-Total Discharges FY09)/Total Discharges FY09
DGY1 = (Total Discharges FY11-Total Discharges FY10)/Total Discharges FY10

Average Annual Growth Rate = (DGY2+DGY1) / 2

Table 41 – Revised Alternate Hospital Calculation Growth Rate Example

Total Discharges	FYB	FYE	W/S S-3, Part I, Line 12, Col 15	Prior Year	Current Year	Increase / (Decrease)	Growth Rate
3rd Prior Year	N/A	N/A	N/A				
2nd Prior Year	10/1/2009	9/30/2010	8,230	N/A	N/A	N/A	N/A
1st Prior Year	10/1/2010	9/30/2011	8,179	8,230	8,179	(51)	-0.6197%
Base Year	10/1/2011	9/30/2012	8,365	8,179	8,365	(186)	-2.2741%
				Total Increase / (Decrease)			-1.6544%
				Average Annual Growth Rate			**0.8272%**

For Year 2 and Year 3 calculations, Base Year Data remains the same and only the Growth Rate is adjusted.

Step 2a: Recalculate Projected Total Discharges

North Carolina will use the recalculated Average Annual Growth Rate from Step 1 (Year 2) and apply it to the Year 1 (Base Year) discharges to recalculate and project Total Discharges for Year 2, Year 3, and Year 4. Projected Discharge figures will be rounded to the nearest whole number.

- Current Year – The Data Source is worksheet S-3 Part 1, Line 12, Col. 15

  Example: **8,179** Base Year Total Discharges

- Year 2 Projected = [Number of discharges in Current Year * (1 + Average Annual Growth Rate)]

  Example: [8,179 * (1 + 0.008272)] = **8,247**

- Year 3 Projected = [Year 2 Projected * (1 + Average Annual Growth Rate)]

  Example: [8,247 *(1 + 0.008272)] = **8,315**

Year 4 Projected = Year 3 Projected * (1+ Average Annual Growth Rate)

Example: [8,315 * (1 + 0.008272)] = **8,384**

Step 2b (Year 2): Re-Calculating the Total Discharge Related Amount

The Overall Electronic Health Record Amount includes a discharge related amount of an additional $200 per projected discharges between 1,150 and 23,000 discharges. No amount is calculated for discharges prior to the 1,150th discharge or for discharges after the 23,000th discharge.

The following formula will be utilized to calculate the discharge related amount for years 1 through 4.

Discharge related amount for Year 1 = (Current Year Projected Discharges under 23,000 – 1149) * $200

Discharge related amount for Year 2 = (Year 2 projected discharges under 23,000 – 1149) * $200

Discharge related amount for Year 3 = (Year 3 projected discharges under 23,000 – 1149) * $200

Discharge related amount for Year 4 = (Year 4 projected discharges under 23,000 – 1149) * $200

Table 42 – Revised Alternate Hospital Calculation Total Discharge Amount Example

	Per Discharge Amount	Projected Total Discharges	Disallowed Discharges	Allowable Discharges	Amount
Year 1	$200	8,179	1,149	7,030	$1,406,000
Year 2	$200	8,247	1,149	7,098	$1,419,600
Year 3	$200	8,315	1,149	7,166	$1,433,200
Year 4	$200	8,384	1,149	7,235	$1,447,000
Total Discharge Related Amount					**$5,705,800**

Step 3 (Year 2): Recalculate the Initial EHR Amount for 4 Years

The Initial Amount is = a base amount of $2,000,000 + the total discharge related amount for each year.

Table 43 – Revised Alternate Hospital Calculation Aggregate EHR Amount Example

Calculate Initial Amount	Year 1	Year 2	Year 3	Year 4
Base Amount	$2,000,000	$2,000,000	$2,000,000	$2,000,000
Discharge Related Amount	$1,406,000	$1,419,600	$1,433,200	$1,447,000
Aggregate EHR Amount	**$3,406,000**	**$3,419,600**	**$3,433,200**	**$3,447,000**

Step 4 (Year 2): Re-Apply the Medicaid Transition Factor for Each of the 4 Years

Transition Factor Year 1 = 1.00

Transition Factor Year 2 = 0.75

Transition Factor Year 3 = 0.50

Transition Factor Year 4 = 0.25

Table 44 – Revised Alternate Hospital Calculation Medicaid Transition Factor Example

	Year 1	Year 2	Year 3	Year 4
Aggregate EHR	$3,406,000	$3,419,600	$3,433,200	$3,447,000
Transition Factor	1.00	0.75	0.50	0.25
Applied Amount	**$3,406,000**	**$2,564,700**	**$1,716,600**	**$861,750**

Step 5 (Year 2): Recalculate the Overall EHR Amount for 4 Years

Add the Aggregate EHR Amount for all four years after application of the Transition Factor.

Revised Alternate hospital Calculation Overall EHR Amount Example

Year 1 $3,406,000

Year 2	$2,564,700
Year 3	$1,716,600
Year 4	$ 861,750
Total	$8,549,050

Step 6 (Year 2): Medicaid Share of the Overall EHR Amount for 4 Years

The Medicaid share calculation shall use the same base year cost report data as the Year 1 calculation; therefore, the Medicaid share remains unchanged from the Year 1 calculation.

Step 7 (Year 2): Recalculate the Medicaid Aggregate EHR Incentive Payment Amount

Aggregate EHR payment = Medicaid Share (Step 6 from Year 1) * Overall EHR Amount (Step 5, Year 2)

Table 45 – Revised Alternate Hospital Calculation Aggregaate Share Example

Overall EHR Amount for 4 Years	$8,549,050
Medicaid Share	0.123750513
Medicaid Aggregate EHR Incentive Payment Amount (to be paid over a 3 year period)	**$1,057,949**

Step 8 (Year 2): Recalculate the Annual EHR Incentive Payment Amount

Payments will be made over a 3 year period for the Overall EHR amount with Year 1 payment at 50%, Year 2 payment at 40 percent, and Year 3 payment at 10 percent.

Table 46 – Revised Alternate Hospital Calculation Annual EHR Incentive Payment Example

Payment Year	Percentage	Payment
Year 1 Payment	50%	$528,974
Year 2 Payment	40%	$423,180
Year 3 Payment	10%	$105,795
Year 4 Payment	0%	$0
Total		**$1,057,949**

Step 9 (Year 2): Calculation Revision in Year 2 based on Additional Full Year of Cost Report Data

Table 47 – Revised Alternate Hospital Calculation Example

	Year 1	
Prior Calculation for Medicaid EHR Payment	$525,302	
Revised Calculation for Medicaid EHR Payment	$528,974	
Difference to Apply to Year 2	**$3,672**	

	Calculation	Revision	Payment
Year 1 Payment	$525,302	$-	$525,302
Year 2 Payment	$423,180	$3,672	$426,852
Year 3 Payment	$105,795	$-	$105,795
Total Payment			**$1,057,949**

C.5.3.3 Adjustments to EHR Incentive Payments Received by Eligible Hospitals

North Carolina Medicaid shall recalculate and adjust EHR Incentive Payments received by eligible hospitals under the following circumstances:

- When recalculation and adjustment is required for Year 2 and Year 3 Payments in accordance with the Alternate Payment Calculation (Section C.5.3.1)
- Upon discovery of any errors, omissions, or ineligible data submitted by the eligible hospital in the attestation that was utilized by North Carolina Medicaid to calculate the original EHR Incentive Payment amount received by the eligible hospital.

Adjustments to the original calculation of the EHR Incentive Payment amount received by the eligible hospital will be based upon the corrected cost report data relevant to the original payment calculation that covers the same full 12 month cost reporting periods pertinent to the original calculation.

Adjustment amounts determined to be an overpayment of the original EHR Incentive Payment shall be recovered by North Carolina Medicaid from the eligible hospital. Adjustment amounts determined to be an underpayment of the original EHR Incentive Payment will be disbursed by North Carolina Medicaid to the eligible hospital.

All eligible hospitals are subject to audit and verification of meeting eligibility requirements. Hospitals who have received an EHR Incentive Payment that are subsequently found ineligible shall have all ineligible payments immediately recovered.

All eligible hospitals are subject to audit and verification of meeting meaningful use criteria. Eligible hospitals who have received an EHR Incentive Payment that are subsequently found not to be have met meaningful use criteria shall have all ineligible payments immediately recovered.

C.5.4 Payment Process

Providers are eligible to be paid after verifications for registration, patient volume, A/I/U/MU attestation, and final CMS clearance are complete. The payment process consists of multiple checks, communications, and coordination between systems and groups.

C.5.4.1 Payment Assignment

EPs have the option of designating an alternate payee provided the payee is either an employer or another organization with which the EP has a business financial relationship. EPs may update their payee designation before payment.

At this time, North Carolina has made the policy choice not to designate an entity promoting the adoption of certified EHR technology for the assignment of 5 percent of any EP's individual EHR incentive payment. EPs are free to make any such payments on their own after the state has issued a payment to them or their assignee. The State reserves the right to designate such entities in a future SMHP version.

C.5.4.2 Payments under Managed Care

North Carolina has utilized a managed care delivery system called Piedmont Behavioral Health (PBH) since April 2005. PBH operates in twelve counties, managing care for individuals with mental health, developmental disabilities and substance abuse needs. PBH's managed care model includes a 1915(b) waiver program called Piedmont Cardinal Health Plan (PCHP). This capitated managed care arrangement is a Pre-paid Inpatient Health Plan (PIHP), since it includes coverage for inpatient as well as outpatient mental health services. Additionally, a 1915(c) waiver program, Innovations Waiver, operates within PBH in these same counties as a Home and Community Based Services capitated program for individuals with intellectual or developmental disabilities.

North Carolina Session Law 2011-246 instructed the DHHS to initiate statewide expansion of the managed care concepts from the PBH experience. Pursuant to this legislation, North Carolina anticipates having additional managed care systems in place by April 2012 and will continue to incrementally phase in the expansion across the state through January 2013. The expansion includes incorporating additional PIHPs in accordance with 42 CFR 438.

The Final Rule did not extend eligibility to all the behavioral healthcare providers operating under the PBH umbrella. Those possibly qualifying as EPs would include physicians with a psychiatric specialty and Certified Nurse Practitioners who would attest individually and not as a part of the managed care entity. Hospitals paid out of the capitated funds through a PHIP would receive normal fee for service amounts as payment for covered beneficiaries.

42 CFR Part 438.6 requires that "contracts with incentive arrangements may not provide for payment in excess of 105 percent of the approved capitation payments attributable to the enrollees or services covered by the incentive arrangement, since such total payments will not be considered to be actuarially sound." DMA does not have contracts with individual providers under its managed care arrangements. While individual physicians and nurse practitioners practicing with managed care entities may attest under the EHR Incentive Program and receive incentive payments, the managed care model does not include the payment of any capitated managed care fees to individual practitioners. Neither does DMA's EHR Incentive Program include payments to managed care entities since they are not eligible providers. Therefore, no risk exists for DMA to be in conflict with the requirements of 42 CFR 438.6.

C.5.4.3 State Business Rules/Payment Environment

After NC-MIPS Operations and DMA have completed validation checks on EP and EH attestations, all determinations of qualification for a payment are reviewed again by the NC-MIPS Operations Team to ensure all conditions for payment have been met. If there are issues in verifying data and determining qualification, those attestations are placed in NC-MIPS Operations' outreach queue so that further information can be sought and a determination of "qualified" or "not qualified" can be reached. If no issues are found, NC requests CMS approval for payment. Upon CMS approval, the list of EPs and EHs approved to receive payments is reviewed by the NC-MIPS Operations Team prior to sending the payment request. The list is checked against a master list of providers who have already received a payment, preventing any duplication of payments. After this final step, payment is requested through the appropriate MMIS channel, and EPs and EHs receive payment through Electronic Funds Transfer (EFT) 1-2 weeks later. Upon payment, a detailed payment report is returned and stored in NC-MIPS, and paid EPs and EHs are transferred to the master list of paid providers.

The State takes many precautions to ensure that incentive payments are accurate and appropriate. NC-MIPS is designed to provide a full audit trail of all information and decisions regarding eligibility and payment calculation components. Checks on maximum payment amounts for EPs are built into the NC-MIPS logic for payment calculation. Incentive payment calculations for EHs are included in this SMHP for CMS and public reference. In 2012 development, NC-MIPS will add the capability for documentation on EHR expenditures to be uploaded directly to NC-MIPS (rather than be faxed or e-mailed in) by the provider.

The State will make payments within 45 days of successful attestation in accordance with CMS policy. At times, North Carolina is faced with cash flow limitations; it is possible, though unlikely, that these limitations could delay payments. The DMA HIT Budget Prime works with the Controller's office to define strategies that will reduce the risk of payment delays. In the case that an EP or EH needs to include Medicaid encounter volumes from other states, a delay in payment could occur; these requests will be handled on a case-by-case basis.

Auditors will perform periodic checks to ensure that there were no reductions in the payment amount, including matching the calculated incentive payment to actual disbursed payment in accordance with *Section D. The State's Audit Strategy*.

C.5.5 Request for Federal Reimbursement

The MMIS payment mechanism currently ensures funds are allocated to the payments from the appropriate accounts by linking a specific cost center with each project. All invoices are reviewed before payment and "coded" to the appropriate cost center. In turn, the state would request incentive payment reimbursement from CMS for 100 percent FFP using the current payment reimbursement request process. All usual State procedures will be followed to ensure that a reimbursement request does not exceed the 100 percent FFP reimbursement rate.

C.6 APPEALS

The provider appeals process that will be used throughout the EHR incentive payment process will parallel North Carolina's current process for provider claims or eligibility appeals, as described in **Table 48**. The first step of the process, reconsideration of DMA action, provides a less formal initial appeals option.

It has been determined that DMA has the statutory authority to utilize the existing appeals structure without the need to create additional rules.

Table 48 - Provisions of the Appeals Process

APPEAL PROCESSES	DENIAL OF INCENTIVE PAYMENTS	INCENTIVE PAYMENT AMOUNTS	DEMONSTRATION OF A/I/U AND MEANINGFUL USE DETERMINATIONS	PROVIDER ELIGIBILITY DETERMINATIONS
PETITION FOR RECONSIDERATION REVIEW				
Reconsideration of DMA Action	A Medicaid EP or eligible hospital may request a reconsideration review upon receipt of final notification of **Medicaid EHR incentive payment denial** as a result of DMA's determination the EP or eligible	A provider may request a reconsideration review upon receipt of final notification of **Medicaid EHR incentive payment amount or payment adjustment** as a result of DMA's determination that the EP or	A provider may request a reconsideration review upon receipt of final notification of DMA's determination that an **EP or eligible hospital has not satisfactorily demonstrated all of the required criteria necessary to be deemed a meaningful user of certified EHR**	A provider may request a reconsideration review upon receipt of final notification of DMA's determination that an **EP or eligible hospital does not meet all provider enrollment eligibility criteria, consistent with 42 CFR 495.304 and 495.306, upon enrollment and re-enrollment to the**

	hospital does not meet all applicable requirements in subparts A and D of Part 495 of Title 42 of the Code of Federal Regulations. Final notification means a letter sent after DMA's monitoring, verification and auditing process is completed which identifies the reasons for the payment denial.	eligible hospital does not meet all applicable requirements in subparts A and D of Part 495 of Title 42 of the Code of Federal Regulations. Final notification means a letter sent after DMA's monitoring, verification and auditing process is completed which identifies the amount of Medicaid EHR incentive payment is correctly owed to EP or eligible hospital or how much the EP or eligible provider owes back to DMA and the reasons for the payment amount or payment adjustment.	**technology, as defined in 42 CFR 495.4, during the EHR reporting period, and that they have not satisfactorily demonstrated that they have all of the required criteria to be deemed as having adopted, implemented, or upgraded certified EHR technology, as defined in 42 CFR 495.302.** Final notification means a letter sent after DMA's monitoring, verification and auditing process is completed which identifies the applicable meaningful use objectives and associated measures and efforts to adopt, implement or upgrade that could not be validated by DMA.	**Medicaid EHR payment incentive program**. Final notification means a letter sent after DMA's verification process is complete that identifies the eligibility criteria that DMA has determined could not be verified.
Time Limit to Submit Request to DMA Hearing Officer	The request must be received by DMA Hearing Officer within 15 calendar days of Final Notification. Requests received in excess of 15 days shall be considered as an improper filing and will be denied. Request must be signed by the provider or the provider's attorney.	Same	Same	Same

RECONSIDERATION REVIEW PROCESS				
Scheduling Review Conference and Submission of Position Paper	Upon receipt of a timely request for a reconsideration review, the EP or eligible hospital will have 14 days to submit their position paper outlining the specific adjustments and why they feel the denial of payment is not justified.	Upon receipt of a timely request for a reconsideration review, the EP or eligible hospital will have 14 days to submit their position paper outlining the specific adjustments and why they feel the adjustment or payback requested is not justified.	Upon receipt of a timely request for a reconsideration review, the EP or eligible hospital will have 14 days to submit their position paper outlining the specific meaningful use objectives and associated measures and efforts to adopt, implement or upgrade that DMA could not validate and why they feel that DMA's determinations are not justified.	Upon receipt of a timely request for a reconsideration review, the EP or eligible hospital will have 14 days to submit their position paper outlining the specific findings of fact and why DMA's findings and denial of enrollment in the Medicaid EHR Incentive Program are not justified.
Notice of Due Date for Position Paper; Supporting Documentation; Extensions	A letter by DMA hearing officer to provider will indicate that failure to submit requested documentation could be cause for dismissal of the request. All requests for extensions must be received in writing prior to the due date for the information to be submitted.	Same	Same	Same

DMA ADMINISTRATIVE DECISION				
Administrative Decision Letter; Notice of Right to Request Contested Case Hearing pursuant to N.C.G.S. 150B-22.	The Decision will be communicated to the provider in a Decision Letter. The Letter outlines each of the provider positions and the hearing officer's determination of each appeal issue.	Same	Same	Same
CONTESTED CASE HEARING WITH NC OFFICE OF ADMINISTRATIVE HEARINGS (G.S. 150B-22)				
Filing a Contested Case Hearing	If the provider disagrees with the decision~~,~~ the provider has the option of appealing to the Office of Administrative Hearings. Filings must be made within 60 days of receipt of DMA decision letter in accordance with G.S. 150B-23.	Same	Same	Same
Notice of Contested Case and Assignment	Once the petition has been filed, a Notice of Contested Case and Assignment is sent to all parties by the Office of Administrative Hearings. This notice will show the name of the Administrative Law Judge (ALJ) who has been assigned to the case and will require that DMA submit any documentation which caused the filing of the contested case.	Same	Same	Same
Notice of Hearing	Not less than 15 days the EP or eligible hospital will receive a Notice of Hearing. This Notice is sent by certified mail to all parties and establishes the time, date, and location of the hearing.	Same	Same	Same

The Hearing	Each party has the right to testify on his or her own behalf. Each party may also offer documents in evidence and have witnesses testify, question opposing party's witnesses and explain or rebut evidence.	Same	Same	Same
Decision of ALJ	The ALJ's decision is made in writing and contains the findings of fact and conclusions of law.	Same	Same	Same
Final Agency Decision	DMA will make the Final Agency Decision, but must adopt the ALJ's decision unless it is clearly contrary to the preponderance of the evidence. Before DMA issues a Final Decision, both Parties will be given an opportunity to file exceptions and written arguments with DMA.	Same	Same	Same
Petition for Judicial Review	A party may appeal a Final Decision within 30 days after being served with a written copy of the decision by filing a Petition for judicial review in the Superior Court of Wake County or in the Superior Court of the county where the EP or eligible hospital resides.	Same	Same	Same

D AUDIT STRATEGY

A more detailed audit strategy for the program will be developed with the assistance of contractor, Public Consulting Group. A contract with PCG that specifies the following work has recently been executed, and will be carried out in coordination with the DMA Financial Management Audit Unit, Program Integrity, Provider Services, and the DMA HIT Team in 2012.

1. ***Assess Current EHR Incentive Payment System/Protocols*** – PCG will perform a comprehensive review of the current EHR incentive payment system to ensure federal requirements are being met, processes are in place to ensure proper, efficient and timely payments are made and a reporting system is in place to summarize results.
2. ***Develop EHR Incentive Payment Audit Work Plans*** – PCG will develop work plans based on the outcome of the assessment. The work plans will address all areas uncovered in the assessment that need to be addressed, along with recommended tasks and timelines.
3. ***Update State Medicaid HIT Plan (SMHP) Audit Strategy –*** PCG will update North Carolina's SMHP Audit Strategy to include audit protocols and criteria for Meaningful Use (MU) audits. Additionally, as part of this work, PCG will develop a Work Plan for conducting audits of EPs and EHs. Year one audits of Eligible Providers (EPs) and Eligible Hospitals (EHs) will focus on eligibility, financial accuracy, and Adopt/Implement/Upgrade (A/I/U) of CEHRT. Subsequent years will focus on MU audits for EPs. PCG will then work with DHHS to gain CMS approval of the proposed strategy.
4. ***Execute EHR Incentive Payment Audit Work Plans*** – PCG will serve as both the Project Manager and supply the staff needed to complete the tasks outlined in the work plans developed in Task #2.

NC expects to add dedicated HIT Program Integrity staff throughout 2012 to take over all audit activities in future years. What follows are the initial plans for an audit strategy as of 2010, to be updated in spring of 2012.

The auditing and program integrity responsibilities for the Medicaid EHR Incentive Program will involve three organizations located within DMA. Two organizations—the Audit Unit of Financial Management Section and Program Integrity, are functioning areas within the DMA. It is anticipated that new staff will be added to the Program Integrity Section. The newly created Provider Services EHR Incentive Program Staff will support a range of program requirements. Working in concert, these organizations will hold primary responsibility for the development, implementation and ongoing monitoring of the program's audit activities. Audit findings will be reported to the agency executive staff. The following diagram, **Figure 12**, shows the high-level responsibilities of these organizations in the conduct of an effective auditing and program integrity program.

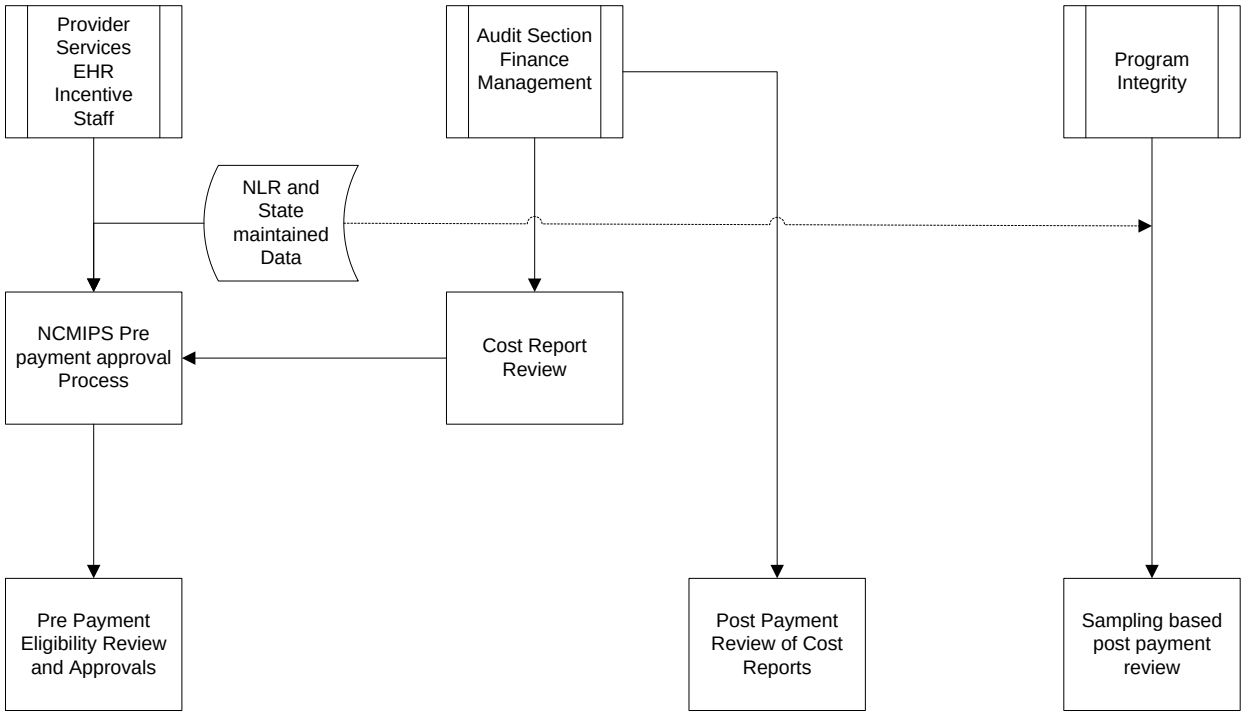

Figure 12 - High-level Responsibilities of DMA Organizations

D.1 RESPONSIBILITIES WITHIN DMA

The DMA will develop a detailed audit protocol designed to meet the specific objectives of the audit function described in this section. This protocol will address the complete audit process, and will include the items indicated in the **Table 49** below.

Table 49 - Specific Responsibilites of DMA and DHHS

DMA Organization Responsible	Audit Protocol Responsibility	Pre Payment	Post Payment	Possible Methods
Provider Services	Steps to verify A/I/U and MU	X		EPs and EHs will be able to upload supporting documentation at Replacement MMIS go-live. In the interim, supporting documentation may be emailed, faxed or mailed. Checklist, possible on-site review of the provider's documentation.

DMA Organization Responsible	Audit Protocol Responsibility	Pre Payment	Post Payment	Possible Methods
	Steps to validate Medicaid and needy patient volume	X		Claims data analysis and possible on-site verification of the provider's patient accounts.
Program Integrity	Steps to provide verification and support when the HIT management staff determine that a provider may not have met A/I/U or meaningful use criteria during a specified time frame. Steps to determine processes, frequency and techniques for identifying sample size.		X	Documentation review Possible site visits
DHHS Office of the Internal Auditor	Steps to conduct audit of agency management controls over the incentive payment eligibility determination and disbursement process.	X	X	Documentation review

D.2 THE AUDIT STRATEGY ACTIVITIES

The DMA Audit Unit of the Finance Management Section and the Program Integrity Section ensures that Medicaid and other funds are used in compliance with federal and state regulations. Existing processes for these organizations will be expanded to include EHR Incentive Program audits.

There are three components to the DMA audit strategy related to the EHR incentive program:

1. Avoid making improper payments by ensuring that payments only go to eligible professionals and hospitals and payments meet all incentive funding requirements
2. Ensure providers and hospitals fully meet the requirements of the Adopt, Implement and Upgrade and meaningful use components of the EHR Incentive Program through a combination of pre-payment activities (e.g., monitoring, validation) and post-payment functions (e.g. selective audits).
3. Prevent / identify suspected fraud and abuse through data analysis and selected provider audits.

Program Integrity post payment reviews will include but may not be limited to: Confirmation of provider attestation of A/I/U using documents submitted at registration or requested during the review process and evidence of duplicate payments or payment errors. DMA may authorize the suspension of payments pending an investigation of a credible allegation of fraud and/or the validation of not meeting program requirements. Working together, the Audit and Program Integrity sections will focus efforts on all post-payment audit activities, while the Provider Services EHR Incentive Staff will be responsible for pre-

payment monitoring of eligibility and attestation. DMA opted for this approach in part to maintain a separation of duties and to provide checks and balances.

During pre-payment auditing, providers would be automatically audited based upon associated risk. Provider risk is defined based on the level of risk associated with different provider and supplier types. DMA would apply three levels of screening tools for audit assignment: (1) “limited risk” providers will have enrollment requirements, license and database verifications; (2) “moderate risk” providers will have those verifications plus unscheduled site visits; and (3) “high risk” providers will have verifications, unscheduled site visits, criminal background check and fingerprinting. DMA also may impose moratoria on the enrollment of new providers when deemed necessary to protect against a high risk of fraud. DMA characterizes this provision as being "of critical importance in the transition of CMS' antifraud activities from "pay and chase" to fraud prevention."

In addition to these activities, suspected fraud or abuse involving EHR incentive payments would be reported to Program Integrity through existing pathways (e.g., department’s fraud hotline and fraud email account). The EHR Incentive Program provider manual will include detailed information on these mechanisms.

DMA is cognizant of the potential for provider burden in the audit and oversight process and has plans to use several methods to reduce provider burden while maintaining integrity and efficacy of the oversight process. First and foremost, DMA is focused on providing clear and detailed program information with the goal of reducing as much complexity as possible. Such materials will be available through a variety of means, including the provider manual, electronic bulletin, website, etc. The hope is that by providing such information, providers will be more likely to adhere to programmatic rules and requirements and therefore less likely to be the subject of an audit. DMA also looks forward to working with CMS on audit strategy and exchange of information between the two programs.

It is expected that the work done by DMA with the REC will reduce provider burden as both organizations work to determine effective ways of sharing data to reduce duplicate requests to providers. EPs that work with the REC should expect the REC to coordinate with DMA throughout their participation in the EHR Incentive Program, especially as EPs meet benchmarks of meaningful use.

The DHHS Office of the Internal Auditor will conduct an internal audit of agency management controls over the incentive payment eligibility determination and disbursement processes within 15 months of the disbursements of the first EHR incentive funds.

D.3 COMPLIANCE WITH A/I/U AND MEANINGFUL USE REQUIREMENTS

The REC will be assisting EPs with practice assessment, workflow redesign, selection and implementation of EHRs to meet the requirements for meaningful use. This should lower the risk of noncompliance with the EHR incentive payment requirements.

EPs and EHs will use the NLR and NC-MIPS to attest to A/I/U in year one and meaningful use beginning in 2012. It is anticipated that an expansion of the CCNC Informatics Center’s data sources will be leveraged to verify meaningful use by 2012. MMIS data is one source of information that can assist in the monitoring and verification of patient encounter volumes. Additional data will be requested from EPs and EHs as necessary.

The NC HIE will also support the receipt of meaningful use information that can be verified. Until that functionality is operational, DMA is considering an additional data warehousing capability to support the meaningful use requirements. Similarly, reports on the immunization registry run by the Department of Public Health may be useful to cross check meaningful use. Plans call for the use of SureScripts reports showing statistics related to ePrescribing that will be leveraged to confirm attestation of meaningful use.

Methods to ensure compliance with A/I/U and Meaningful Use include:

- Providers must attest that they have a certified EHR technology and will be able to submit a copy of that contract

- Providers must attest to A/I/U before any incentive funds are released
- Providers must attest to A/I/U in the first year and be able to demonstrate meaningful use in subsequent years of EHR incentive program participation

DMA Program integrity will conduct random audits on a small number of providers, to verify information provided through attestations of A/I/U and meaningful use. This effort will utilize data contained in the NLR, NC-MIPS, MMIS, CCNC's Informatics Center and at EP or EH facilities as necessary.

D.4 IMPROPER PAYMENTS, OVERPAYMENTS, FRAUD, AND ABUSE

To avoid making improper or duplicate payments, the policies and procedures of DMA require checking the NLR prior to authorizing a payment and updating the NLR with payments made via interfaces between the NLR and NC-MIPS. An audit trail will be maintained in NC-MIPS containing the date and time that NLR files are sent and received. As previously noted in *Figure 13 High-level Responsibilities of DMA Organizations*, NC-MIPS algorithms and operational staff will be responsible for up-front review of provider eligibility and A/I/U attestations. Once incentive payments have been disbursed, the DMA Program Integrity will identify EHR incentive payment providers for post-payment audits.

To reduce the audit burden for EPs, EHs and the State, program participants will be encouraged to submit copies of supporting documentation during Attestation. Supporting materials may include: Copies of certified EHR technology purchase agreements, employment contracts (if using group volume totals or assigning payment to a third party), documentation verifying Medicaid volumes, etc. Prior to Replacement MMIS go-live this information must be sent to the customer support center via email, fax or mail. A facility to upload these documents through FileNet is planned at Replacement MMIS go-live.

If an audit finding indicates suspected fraud, a referral will be made to the MFCU, in accordance with existing DMA policies and the MOU with the MFCU. The North Carolina Attorney General's Office may also be notified.

D.4.1 Audit Target Selection

DMA Program Integrity will conduct both random and targeted audits. Targeted audits are those made on a selective basis, based on the following criteria:

- When there are indications that the EP or EH has reported invalid information. For example:
  - A comparison of the Medicaid patient volume reported by the EP with Medicaid claims database indicate that numbers may be inflated or include CHIP beneficiaries
  - The EP or EH fails to submit sufficient credible information to support the A/I/U attestation
- If an EP or EH becomes the subject of an unrelated program integrity review opened as the result of data mining or complaint about their Medicaid billing practices.
- If sudden drops or spikes in the Medicaid claims volume for an EP or EH are noted after receiving incentive funds.
- If it is determined that duplicative or excessive payments are received by an EP or EH.
- If a provider loses licensure, becomes part of a corporate integrity agreement, is terminated from the Medicaid program, and/or has his or her Medicare privileges revoked.

A number of providers will be selected at random every year for an audit of their EHR program in addition to targeted audits triggered by the factors listed above. The number of random audits performed will be based upon the total number of EPs and EHs who apply for an EHR incentive payment after year one. Audits may be either desk or on-site reviews.

D.4.2 Audit Random Benchmarks

The estimated number of EPs in year one is 1921. Eighty-three is the projected maximum number of EHs over the life of the project. A small sample of EPs and EHs will be audited in year one; specific percentages will be determined in year two based on the universe of enrolled providers. The providers randomly selected for audit will be those meeting the target criteria previously described.

Audits will follow existing DMA Program Integrity and Audit Section policies for planning, audit supervision, development for audit findings, and documentation of findings.

If an audit identifies an overpayment or improper payment (one made to an ineligible provider), the overpayment will be recouped from the provider in accordance with existing provider refund procedures. Repayments can be made either by check or electronic funds transfer. Overpayments will be tracked through the Program Integrity case management system. Any EHR incentive funds recouped from providers will be identified on the CMS 64 in accordance with normal reporting procedures as well as any specific EHR Incentive funding reports.

E THE STATE'S HIT ROADMAP

E.1 2011-2015

The program began 2011 with a running start, and the next four years will be formative in the adoption of HIT and expansion of HIE in the state of North Carolina. As a key stakeholder, North Carolina Medicaid anticipates annual milestones supported by the specific activities summarized in **Figure 13** below. The narrative that follows describes each milestone.

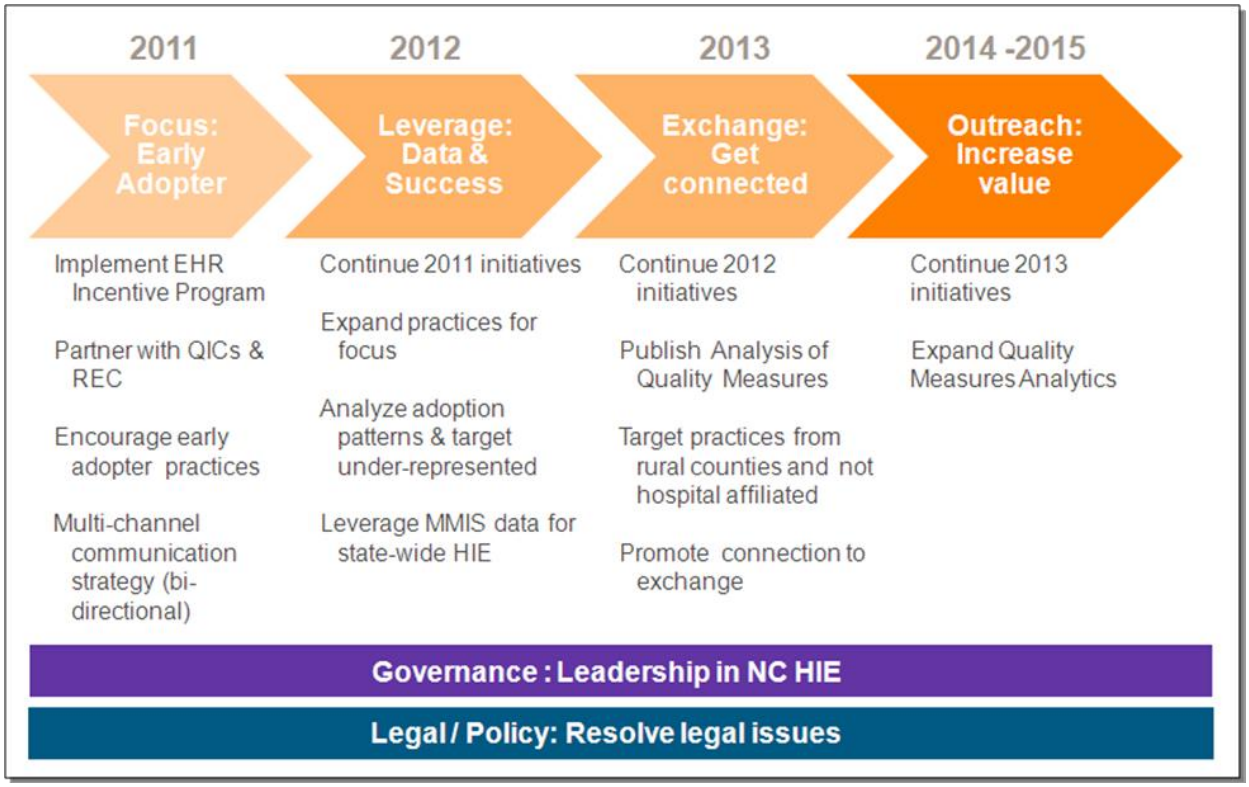

Figure 13 - State HIT and HIE Roadmap

2011

Three main threads of activity occurred in 2011. Each played an important role in influencing EHR adoption.

1. Implementing the EHR Incentive Program in the first quarter of calendar year 2011.

2. Partnering with the REC to encourage early adoption: REC EHR consultants served an incredibly important role in their hands-on assistance to the provider community across the State in 2011. DMA participated in meetings and weekly office hours call with REC staff to address issues and challenges associated with EHR adoption and attestation for incentive payments.

3. Multi-channel communication strategy: NC DMA developed and executed a preliminary HIT Communication Plan toward the end of the year, including website improvements, regular articles in Medicaid provider bulletins and partner publications, outreach activities to partners and providers, and enhanced telephone and e-mail support to ensure better awareness of the program throughout NC and efficient handling of providers' questions and concerns. .

2012

As a relatively new entity, the DMA HIT Team will analyze audit findings, prior communication and outreach efforts, and overall program performance in 2011 to chart a more proactive and comprehensive program for 2012. As part of this work, DMA HIT will review provider adoption patterns to date to identify progress and opportunities for expanding outreach efforts beyond the group most highly targeted in 2011: primary care practices.

DMA HIT will also work closely with NC HIE, N3CN, Public Health, and internal DMA units in 2012 to realize the planned infrastructure necessary for advanced meaningful use of clinical data in NC and plan for accelerated efforts where possible.

2013

Providers who have adopted EHRs in previous years will be increasing their use of CEHRT, adding functionalities to improve their clinical practice, and gaining comfort with the technology throughout 2013.

Analyzing the profile of late adopters, NC will again re-direct outreach efforts and methods to engage those segments of the provider community. DMA HIT will continue to work closely with NC HIE and N3CN to ensure optimal data exchange and CDR functionality is available for all eligible professionals and hospitals, and with other DHHS units and divisions to coordinate and align HIT efforts across the Department.

2014-2015

The data that becomes available with the introduction of Stage 2 meaningful use measures will provide an analytic foundation for demonstrating the value of CEHRT and HIE. Quality reporting may be a key factor in the sustainability model for EHRs and HIE. As clinical healthcare data analytics become more prolific and quality measures become more important to driving improvements in quality of care and reductions in healthcare costs, providers will be even more inclined to participate in HIT/E initiatives.

In summary, a methodical, step-by-step, multi-faceted strategy to encourage EHR adoption will result in the greatest improvement in the healthcare delivered in the state of North Carolina in the areas of reduced cost, improved quality and best practice, non-duplicated utilization.

E.2 EHR ADOPTION PROJECTIONS

It is difficult to predict the rate of EHR adoption for the State. There is no proven, widely-accepted model for projecting provider behavior on the scale and precedence of the current endeavor. The following is a projection made in 2010 for the following five years.

Below are some assumptions that NC made when determining the projections that follow:

- Adoption among providers in rural areas will lag behind those in urban and suburban areas
- For those who have already implemented an EHR, upgrades will follow in the first year or two
- Adoption among providers affiliated with a hospital will generally precede adoption by providers who are independent
- Providers affiliated with a hospital will lag behind adoption by that hospital
- HIE will multiply the clinical practice benefits of EHRs; thus, EHR adoption will increase as HIE is available

The following **Table 46** represents projections of:

- **Eligible Professionals**: These percentages reflect only the Medicaid-eligible professionals projected to have the qualifying minimum of 30 percent of their patient base composed of Medicaid patients. This was originally estimated to be 3,098 out of 33,909, or 9.1 percent of all Medicaid enrolled providers.
- **Eligible Hospitals**: These percentages reflect all general and critical access hospitals in the State.

Table 50 – Anticipated EP and EH Adoption Percentages

	2011	2012	2013	2014	2015
Eligible Professionals	61%	70%	75%	80%	85%
Eligible Hospitals	34%	45%	60%	65%	70%

Adoption of CEHRT in NC as measured by incentives paid in 2011 was much slower than originally anticipated, especially among eligible professionals. As of December 31, 2011, NC Medicaid had paid 265 EPs and 21 EHs, representing 8.6 percent of EPs and 22.8 percent of EHs, per 2010 projections of eligible NC professionals and hospitals. However, around 1,000 EPs registered with CMS in 2011 for participation in the program, indicating 32.3 percent of EPs statewide have adopted or have plans to adopt CEHRT in the near future.

E.3 ANNUAL BENCHMARKS FOR AUDIT AND OVERSIGHT

The State's audit strategy is under development and pending updates in *Section D*. Annual benchmarks for audit activities will be developed in early 2012, and will be defined and refined in future iterations of the SMHP.

APPENDIX 1: EHR SURVEY SAMPLE

CSC 50 YEARS STRONG

NC Medicaid EVC Center

Please answer the following questions:

1. Does your practice use an electronic health record/electronic medical record EHR/EMR?
   Definition: A set of products and services that provide an integrated solution, including clinical and business applications, to automate a clinical practice for the purpose of increasing efficiency, quality, and safety.)

   Yes, all electronic Yes, part paper, part electronic No Do not know (circle one)

   1.1 If yes, please name the product(s) _____

   1.2 If yes, what year did you purchase an EHR? _____

2. Is the electronic health record system integrated with a hospital system where you admit patients (i.e. your patient's ambulatory EHR is accessible through the hospital's EHR system)?
   Yes No Don't Know (circle one)

3. If you use an electronic health record, does it meet certification standards?
   Yes No Don't Know (circle one)

4. If you are not currently using an EHR, do you plan to purchase one in the next 6 to 12 months?
   Yes, in _____months No (circle one)

5. What is/was your greatest barriers to EHR adoption?
   Yes No (circle one)

Financial

a. The amount of capital needed to acquire and implement an EHR — Major Minor N/A
b. Uncertainty about the return on investment (ROI) from an EHR — Major Minor N/A

Organizational Barriers

c. Resistance to adoption from practice physicians — Major Minor N/A
d. Capacity to select, contract, install and implement an EHR — Major Minor N/A
e. Concern about loss of productivity during transition to an EHR — Major Minor N/A

Legal or Regulatory Barriers

f. Concerns about inappropriate disclosure of patient information (i.e. breaches of patient confidentiality) — Major Minor N/A
g. Concerns about illegal record tampering or "hacking" — Major Minor N/A
h. Concerns about the legality of accepting an EHR that is donated from a hospital — Major Minor N/A
i. Concerns about physicians' legal liability if patients have more access to information in their medical records — Major Minor N/A

State of the Technology

j. Finding an EHR system that meets providers' needs — Major Minor N/A
k. Concerns that the system will become obsolete — Major Minor N/A

6. In your opinion, what level of impact would the following have in incentivizing physicians to adopt an EHR?

Legal or Regulatory Incentives

a. Change the law to protect physicians from personal liability for record tampering by external parties or for privacy and security breaches — Major Minor N/A

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p + 1.866.844.1113

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PS900 (Initial Verification Packet Letter)
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b. Concerns about legal liability as a result of NOT using the latest technology — Major Minor N/A

State of the Technology

c. Published certification standards that indicate whether an EHR has the necessary capabilities and functions. — Major Minor N/A

Financial Incentives

d. Incentives for the purchase of an EHR (e.g. tax credits,low interest loans, grants) — Major Minor N/A

e. Additional payment for the use of an EHR (i.e. additional reimbursement for using an EHR). — Major Minor N/A

7. Are you using electronic-prescribing? — Yes No (circle one)

8. Are you using a hand held device or computer to send or receive pharmacy prescriptions? (circle one/ or both)

If yes, please name the product _____

If yes, what year did you begin? _____

9. Do you see Medicare patients? — Yes No (circle one)

APPENDIX 2: NCHA SURVEY QUESTIONS

NCHA survey questions, 2011-2012

1. Are you aware of the NC Medicaid EHR Incentive Program?

2. In what year do you plan to initially apply for the NC Medicaid EHR Incentive Program?

    In FFY 12?

    In FFY 13?

    In FFY 14?

    After FFY 14?

3. What is the amount you estimate you will receive as an incentive payment?

    Fill-in the blank

    Do not know

4. What types of information would you like to receive regarding the NC Medicaid EHR Incentive Program? Check all that apply

    Information about registration and attestation

    Information on Meaningful Use

    Information on calculating your estimated incentive payment

    Information on program and policy updates

    Other topics

    Fill-in-the-blank box

5. What format would you like to receive information from the EHR Incentive Program?

    Program website

    Updates through NCHA

    Medicaid Provider Bulletin

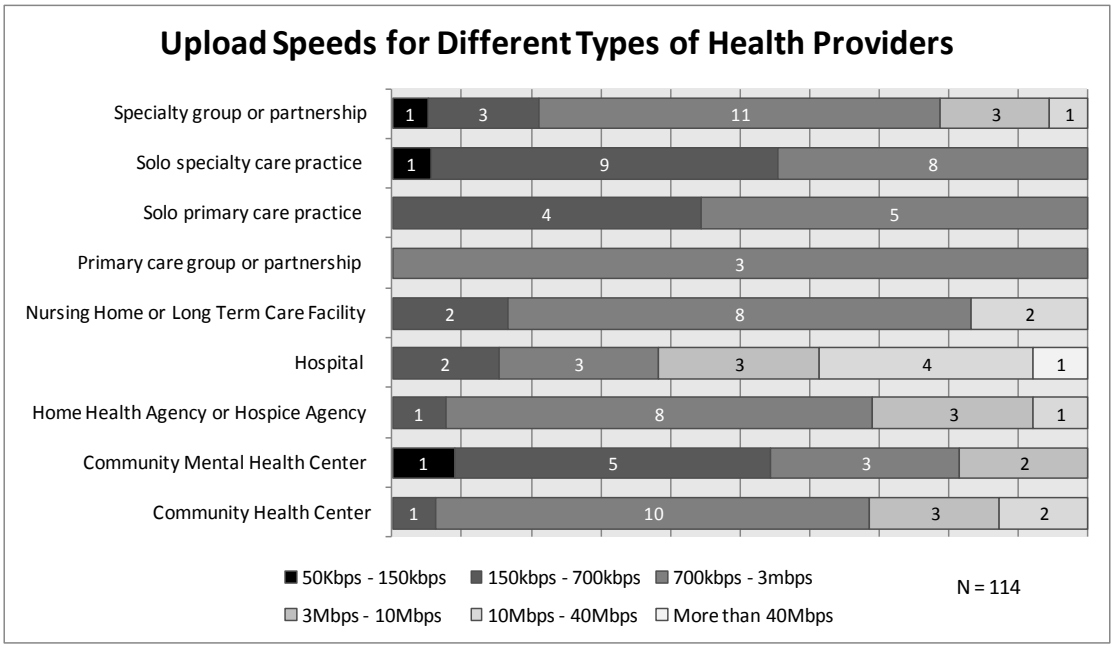
    Opt-in program e-newsletter

    Informational webinar

    Other ways

    Fill-in-the-blank box

APPENDIX 3: BROADBAND SURVEY



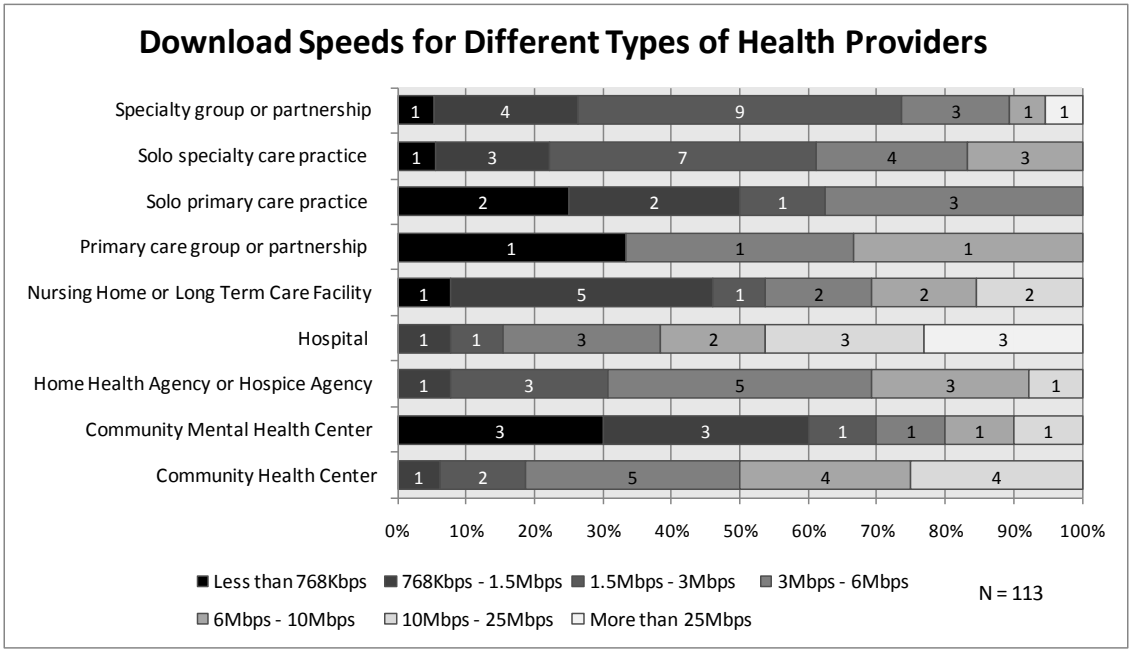


Figure 14 - Connection Speeds for different types of Health Providers

Mobility has emerged as an important function for health organizations, with 62 percent of organizations stating that mobile Web functions were either essential or very important to their organization. The primary tool for mobile Web functions is the laptop computer, used by almost 80 percent of respondents' establishments. Web-enabled mobile phones are used by 55.4 percent, while other handheld devices are used by 36.2 percent of establishments.

Utilization

The study identified how establishments used a variety of processes and applications in the health sector. The database can analyze utilization by size, type and general location characteristics. This report includes only a summary and some notable observations.

In contrast, adoption or planning for remote services, such as home based services and remote monitoring, have relatively low levels of adoption and very limited evidence of growth, as reflected in the figure (**Figures 15 and 16** - Use of Health Applications by Type of Institutional and Private Practice Health Provider) below.

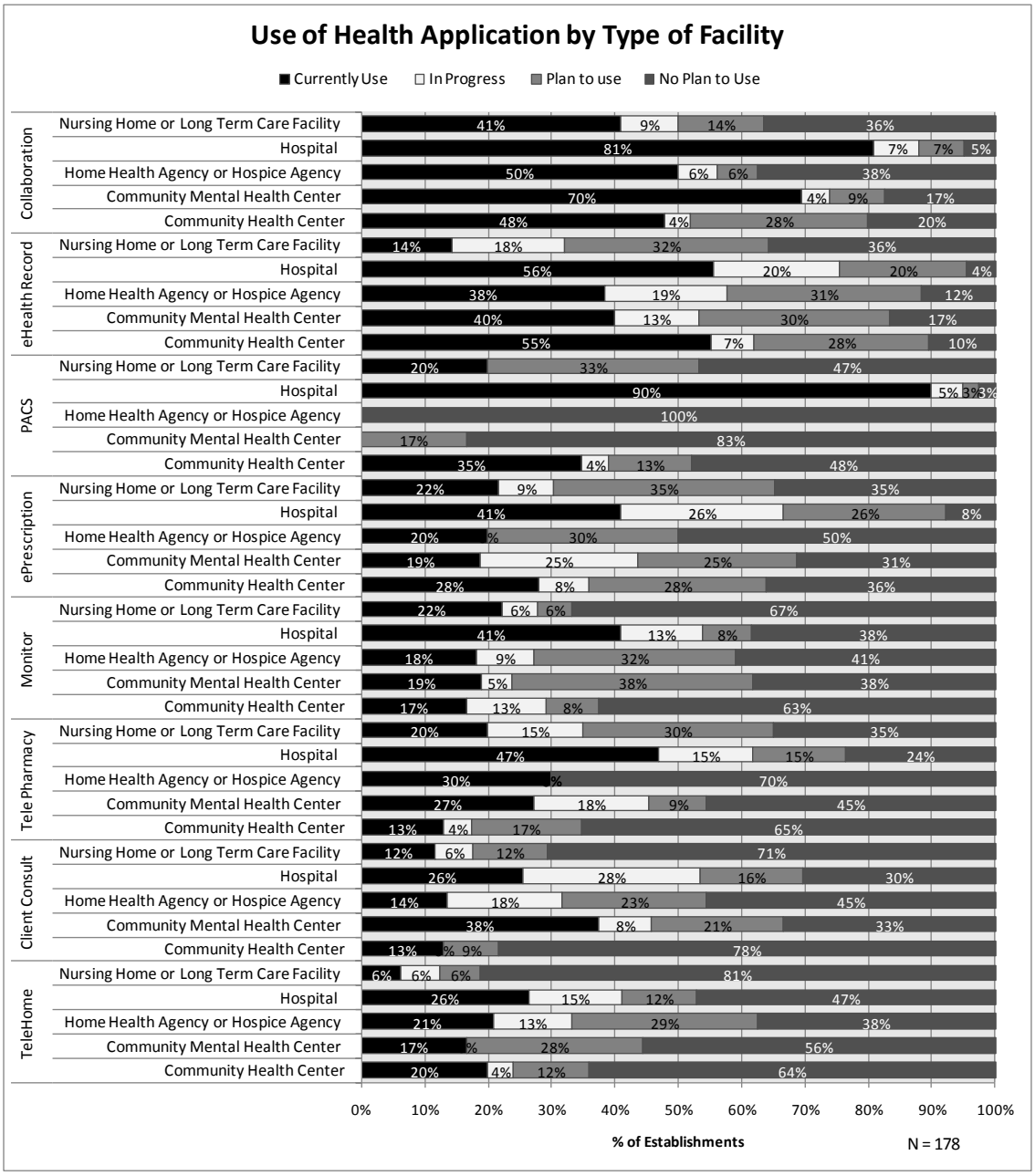


Figure 15 - Use of Health Applications by Type of Institutional Health Provider

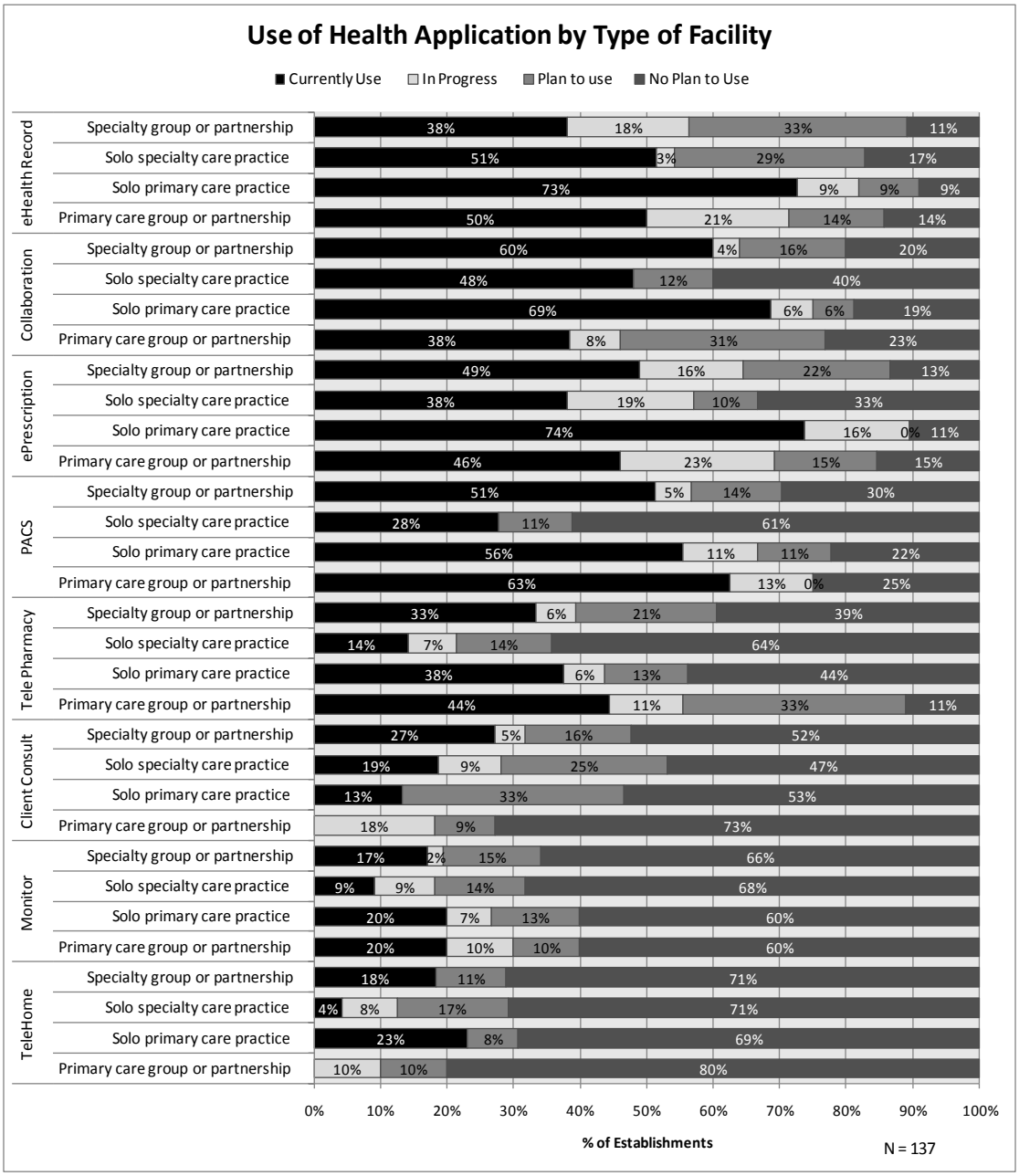


Figure 16 - Use of Health Applications by Type of Private Practice

Barriers

In looking at the barriers to adoption of broadband enabled processes and applications, the health sector shares in society's prioritization of security and privacy as the top two barriers. However, other health sector specific issues are also of major concern, among them costs, system compatibility, reimbursement, quality of outcomes, and regulatory issues. Still significant, but at the lower end of the priority list, were more human issues such as loss of personal contact and acceptance by consumers and other health providers (See **Figure 17**- Barriers to Adoption of Health-related e-Solutions).

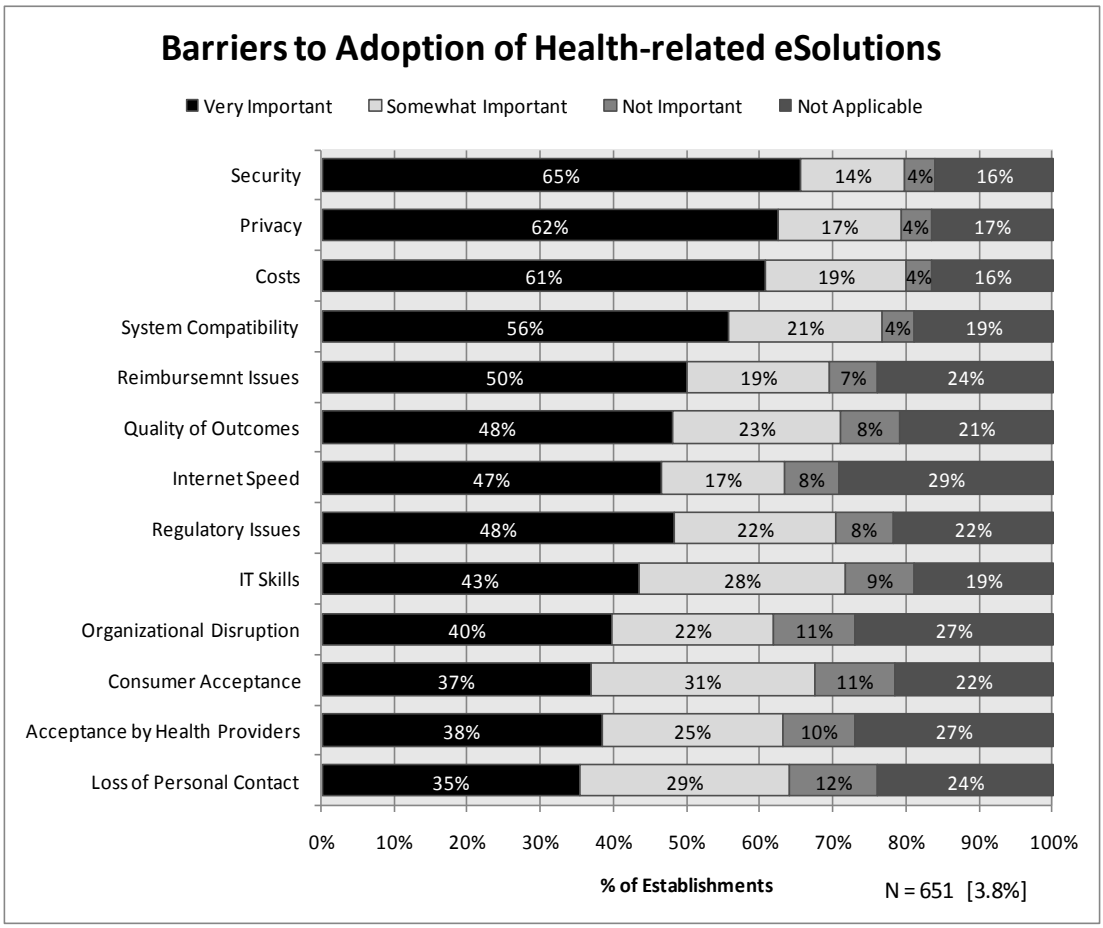


Figure 17 - Barriers to Adoption of Health-related e-Solutions

Various types of health providers differed in their assessment of some barriers to adoption of broadband. Significant differences were found in assessment of Internet speeds (they matter more to hospitals) and loss of contact with patient (really matters to community mental health centers, but far less to community health centers). (See **Figure 18** - Barriers to Adoption of eSolutions by Type of Provider).

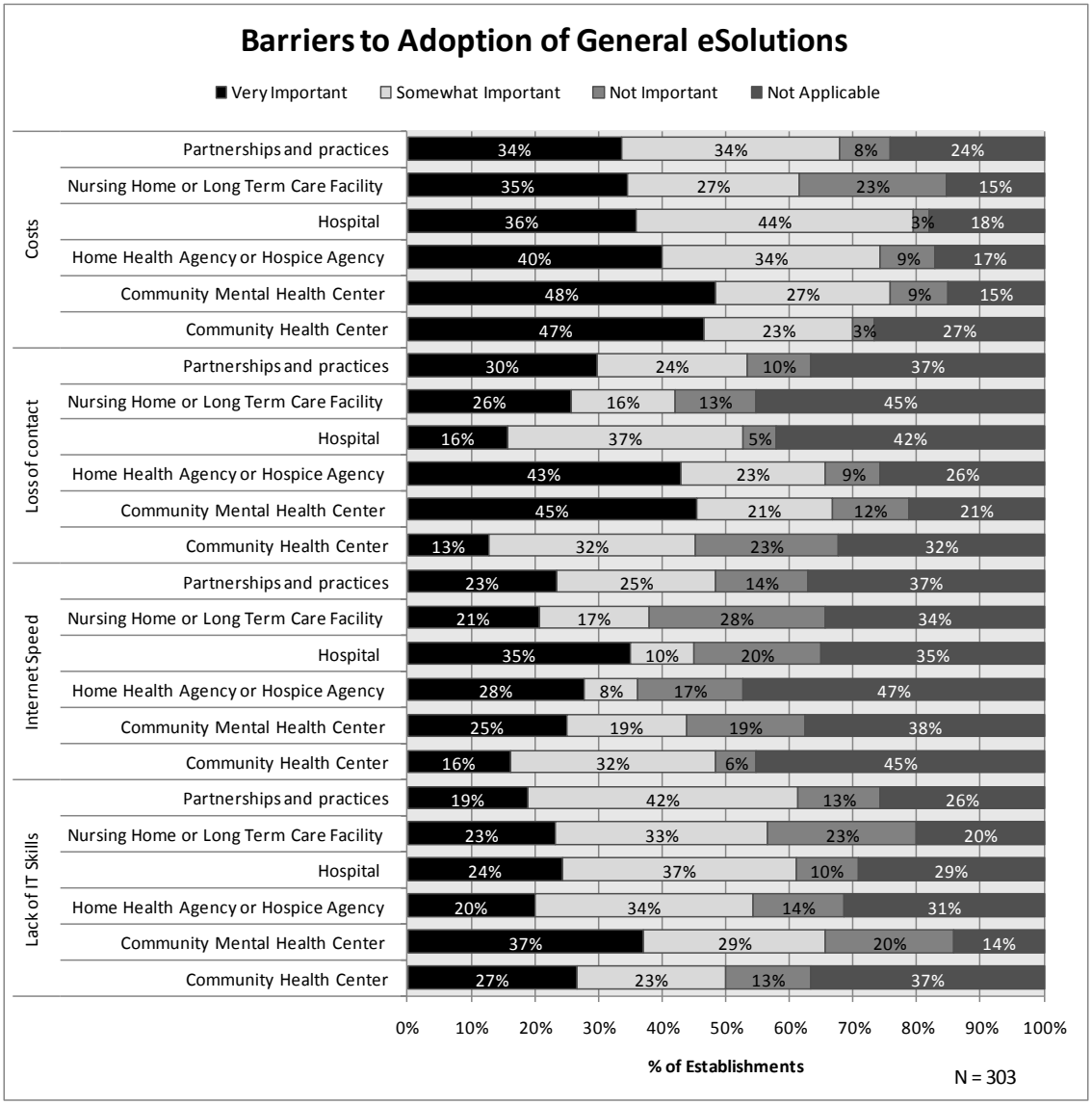


Figure 18 - Barriers to Adoption of eSolutions by Type of Provider

Drivers of eSolutions Adoption

On the issue of issues that drive or motivate adoption, marked differences can be found between health establishments of different sizes. Large establishments find most motivating factors to be very important. Among a large percentage of single person health providers, many of these same factors were not seen to be applicable. Across all sectors, productivity and improved health outcomes were the two most frequently cited motivating factors (See **Figure 19** - Drivers of Adoption by Size of Health Provider).

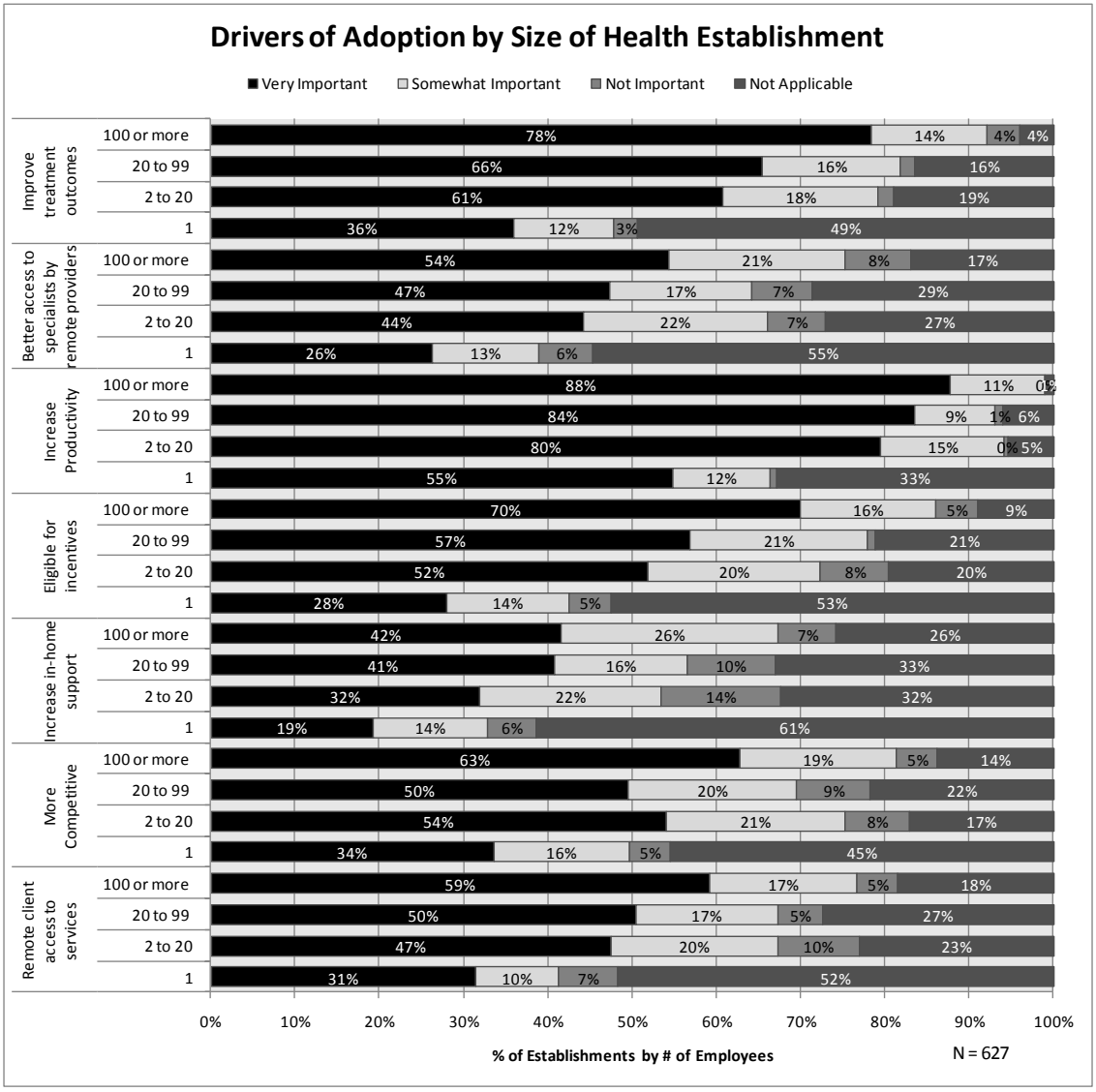


Figure 19 - Drivers of Adoption by Size of Health Provider

Household Responses

As part of an examination of the health sector, it is useful to examine responses from the household survey. Generally, current and planned use of most telehealth services by private households is low, with only 8 percent and 18 percent of households using or planning to use six of the seven telehealth services (see Figure 21). Use of the Internet to research personal health issues was the one area where current use is high at 41 percent. Nevertheless, it is very notable that respondents' willingness to explore telehealth services was high at 53 percent to 68 percent. This would indicate that there is a lot of potential for telehealth services (See **Figure 20** - Use of Home Based TeleHealth).

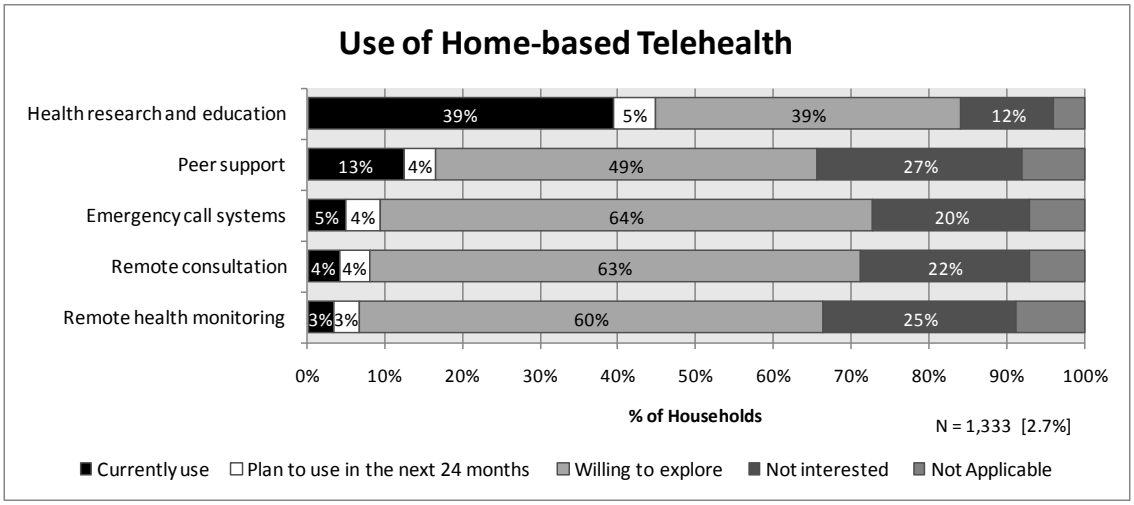


Figure 20 - Use of Home Based TeleHealth

A second health related question was limited to private households that had received one or more types of telehealth services in their home. When asked about their level of satisfaction, only 3-9 percent expressed any level of dissatisfaction. Depending on the type of telehealth service, between 55 percent and 69 percent of household respondents indicated that they were either "very satisfied " or "satisfied" with their experience (See **Figure 21** - Household Satisfaction with Current Health Services).

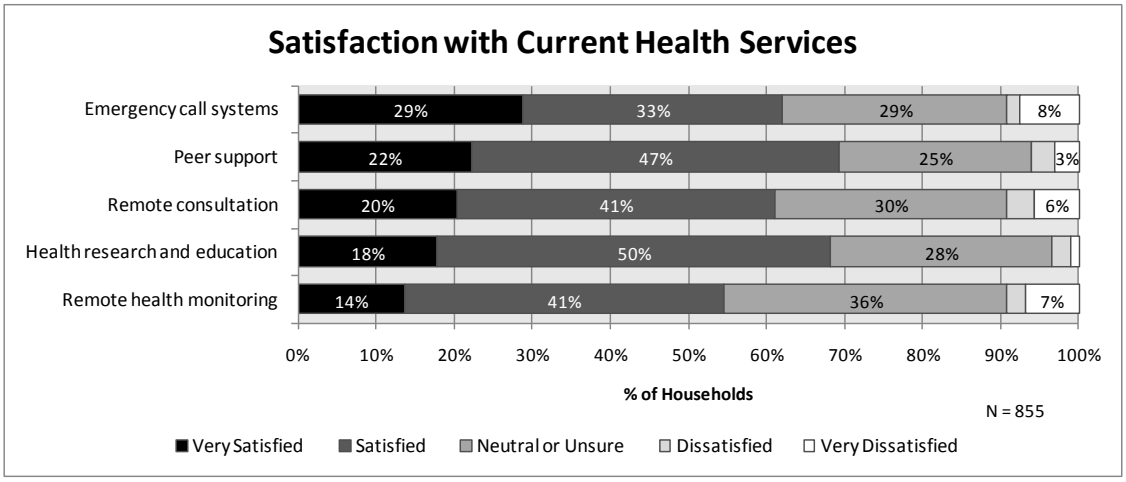


Figure 21- Household Satisfaction with Current Health Services

Respondents were asked to identify what could motivate them to utilize telehealth services. Responses included:

- *Reduced costs and financial burden*

- *Improved quality of support or health service*
- *Speed of assistance response*
- *Access to services not available locally*
- *Reduced travel for health services*
- *Increased control over the service experience*

A clear majority (between 73 percent and 77 percent) said that all of these factors would be either very important or somewhat important in motivating them to use telehealth services (See **Figure 22** - Household Motivations for using Telehealth Services)

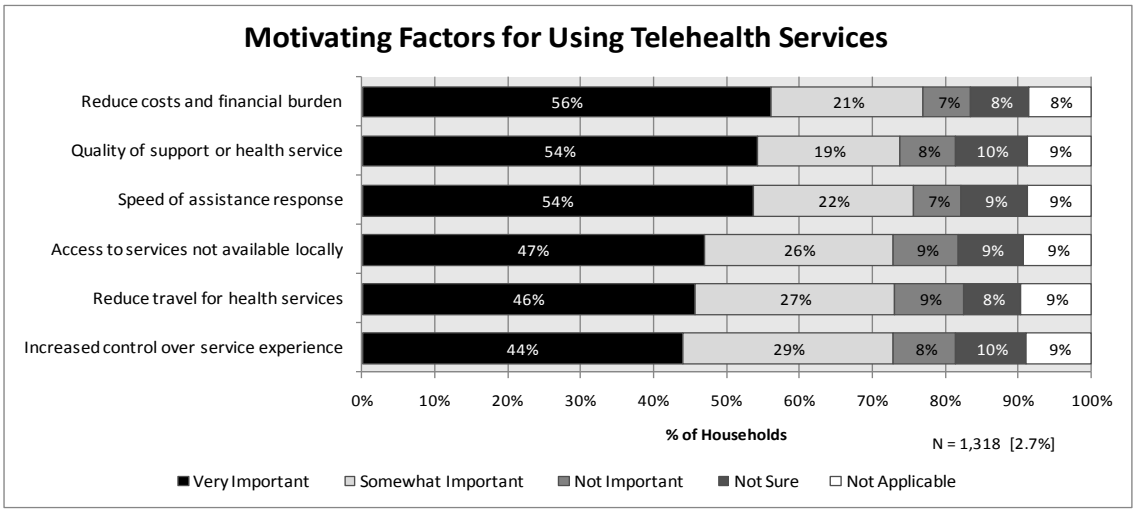


Figure 22 - Household Motivations for using Telehealth Services

As for barriers to utilizing telehealth services, there was significant difference between how important different factors were rated. Consistent with other findings, privacy and security were the largest concern (cited by 58 percent as a very important barrier), followed by slow or unreliable Internet (51 percent) and uncertainty over the quality of telehealth services (36 percent). Far less important were lack of technical skills (17 percent) or discomfort with the technology (12 percent). This information should be valuable in designing adoption strategies for home based telehealth services (See **Figure 23** - Household Barriers to using Telehealth Services).

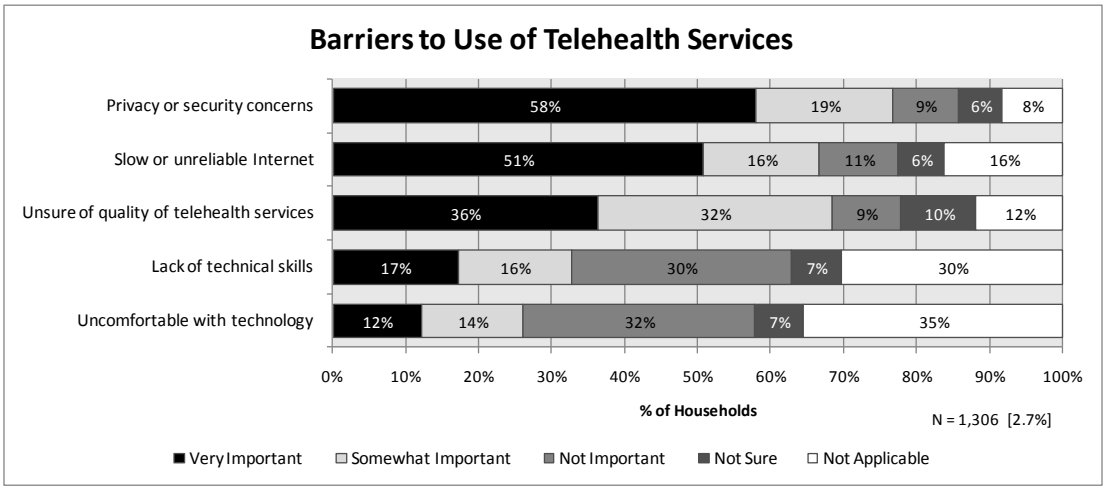


Figure 23 - Household Barriers to using Telehealth Services

Broadband Internet Infrastructure

Limited high-speed broadband access in eastern and western sections of the State has been a significant concern. In 1980, the North Carolina General Assembly incubated the Microelectronics Center of North Carolina (MCNC) as a non-profit organization to address this access issue for many of the rural parts of the State. One of MCNC's main activities is the operation of the North Carolina Research and Education Network (NCREN). NCREN provides broadband communications technology services and support to all 115 K-12 school districts, 20 of 58 North Carolina Community Colleges, all University of North Carolina system institutions, 24 of 36 North Carolina private colleges and universities and public health facilities across the State.

On January 20, 2010, the National Telecommunications and Information Administration (NTIA) announced that the MCNC had been awarded $28.2M via the Broadband Technology Opportunities Program (BTOP) for infrastructure. These middle-mile broadband recovery funds are the BTOP Round 1. MCNC's funded proposal included the construction of 500 new miles of fiber in 37 counties in the rural southeastern and western parts of the State. The main goal of this fiber build was to offer virtually unlimited amounts of bandwidth to the public education institutions served by NCREN at stable costs for the next two decades, even though demand for bandwidth among these institutions is growing at 30-40 percent annually. [1]

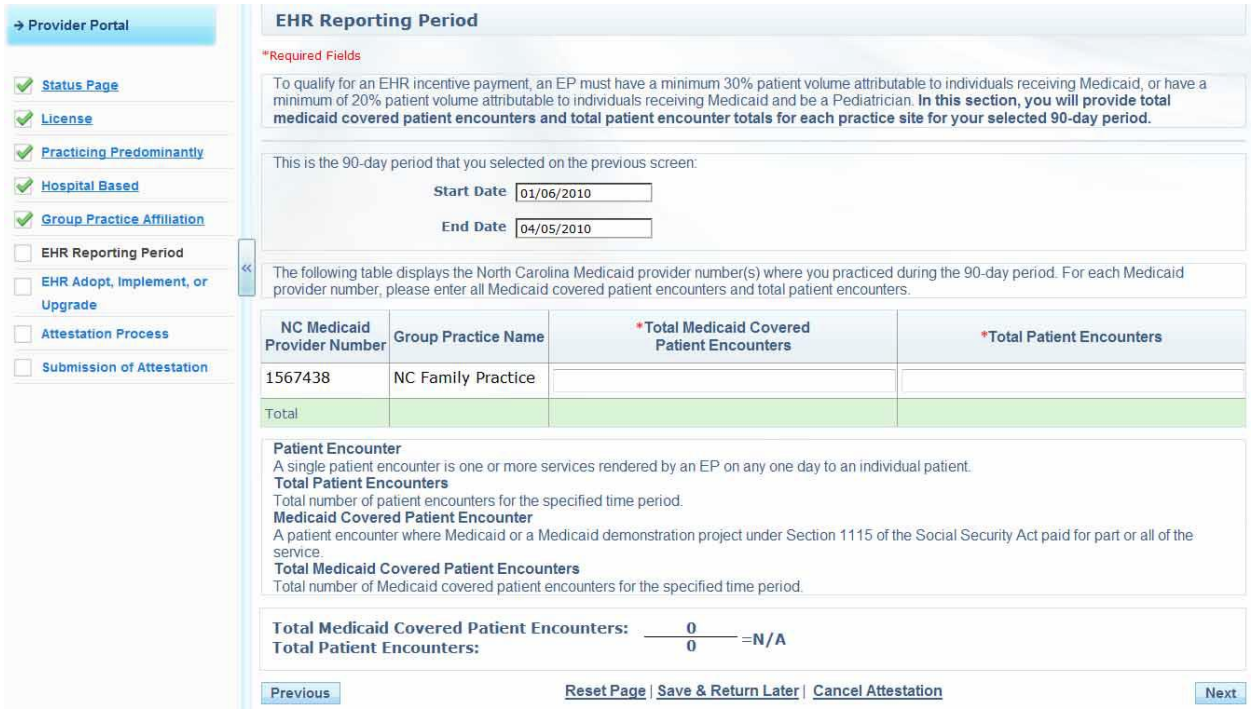
Because of its success in Round 1, MCNC submitted its application on March 26, 2010, for Round 2 BTOP funding for a middle-mile fiber build in the following regions: Northeastern, North Central, Northwest and South Central North Carolina. MCNC again partnered with private sector providers, Education and Research Consortium of the Western Carolina (ERC) Broadband and Balsam West to assist with this application. MCNC also worked with the Frank Hawkins Kenan Institute at UNC-Chapel Hill and the UNC School of Government as research partners in this effort. [1]

If Round 2 is funded, this middle mile will serve public education institutions in the partner counties. Also, Round 2 rule changes will enable MCNC to build direct fiber to other counties and municipal institutions—including bringing high-performance broadband to healthcare providers. To take advantage of improvements in broadband access, the North Carolina Hospital Association (NCHA) has taken a leadership position. NCHA has partnered with the North Carolina TeleHealth Network (NCTN) to create a private statewide broadband network of healthcare providers to meet the growing bandwidth needs that will result from EHR adoption and Health Information Exchange (HIE) activities. The hospital phase of the project is known as NCTN-H and will provide an 85 percent discount for public and not-for-profit hospitals; other hospitals will be able to leverage a volume discount and join the network as well. Currently, 85 percent of NC-licensed hospitals and 76 percent of all NC hospitals are registered and eligible to participate in the NCTN offering.

Details of MCNC's Round 2 application were released in April 2010. Since then the NTIA has been processing the application and the State is still in competition. The State will address another round of due diligence questions for further federal analysis. A Round 2 grant in the amount of $75 million was announced and awarded to MCNC.

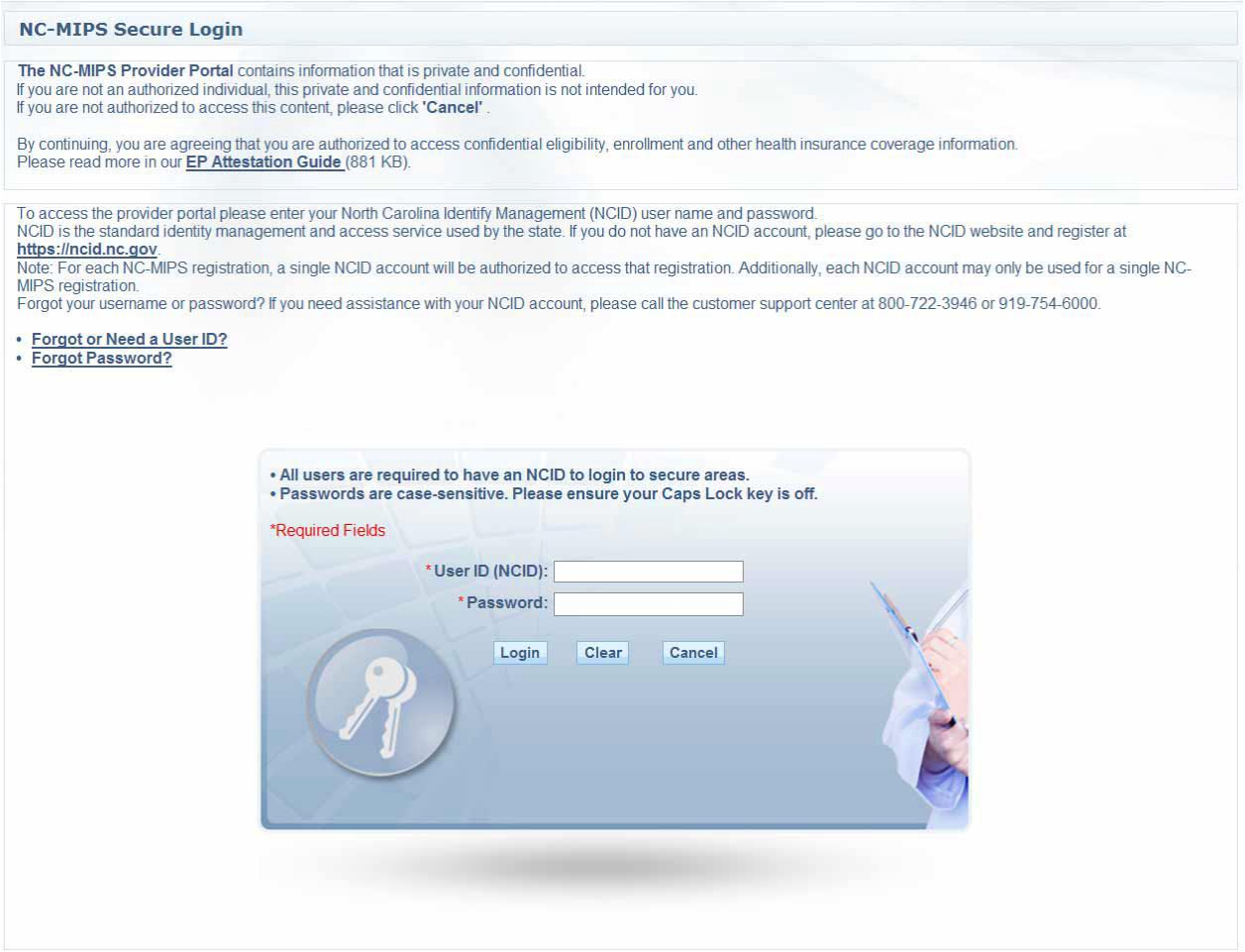
MCNC's North Carolina Rural Broadband Initiative project proposes to extend the benefits of its $28.2M BTOP Round 1 award to deploy infrastructure in eastern and western North Carolina by constructing more than 1,300 miles of fiber infrastructure to community colleges, libraries, schools, health and public safety facilities, and other community anchor institutions in 69 of the most economically disadvantaged rural counties, primarily along the northern and southern borders of North Carolina. The project proposes to build out a 100 Gbps middle-mile network with a 3 Mbps wireless component to support eLearning and advanced statewide research initiatives, improvements in public health and electronic medical records, and improved network connectivity for existing network infrastructure, as well as access to high-speed educational networks.

APPENDIX 4: NC-MIPS SAMPLE SCREENSHOTS

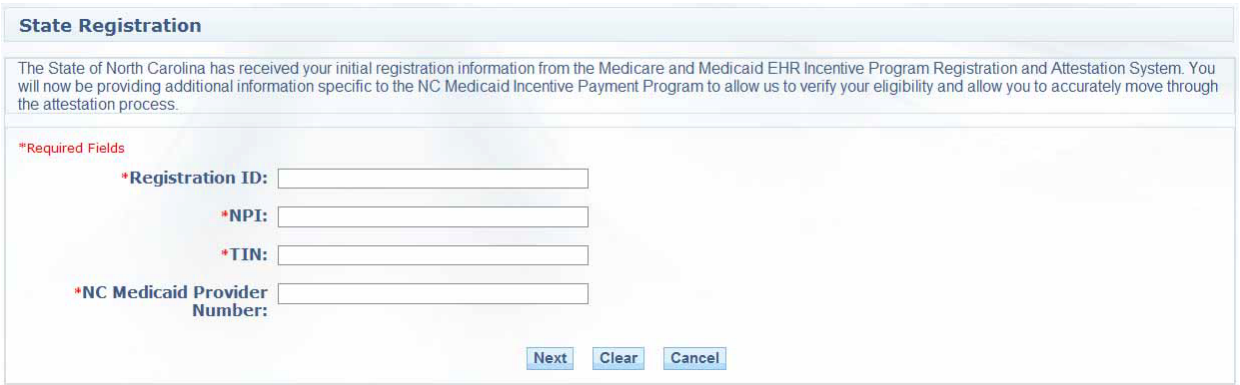


MIPS-90 Day Patient Volumes Details

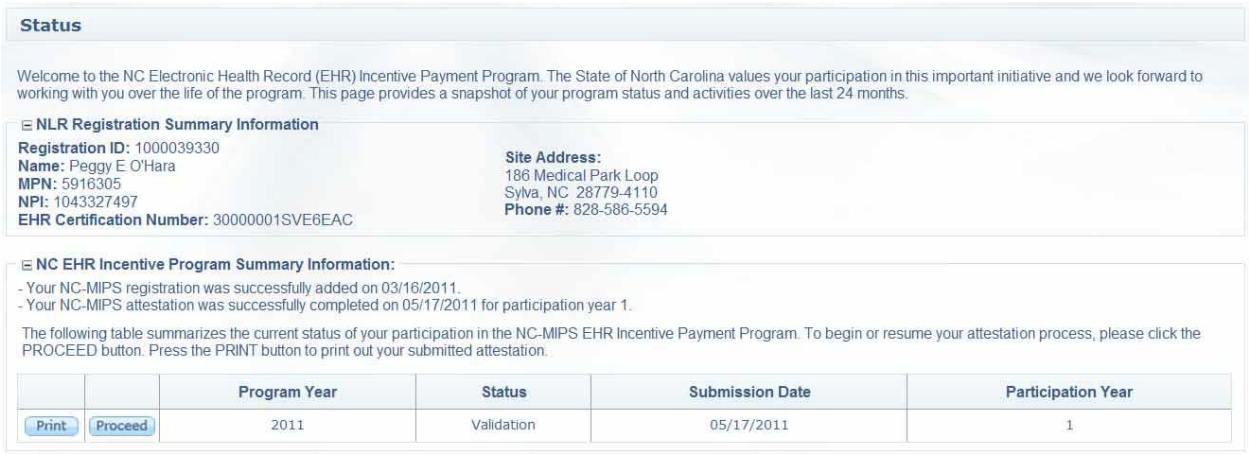
EHR Adopt, Implement, or Upgrade



MIPS Login Page



MIPS Registration



Status Screen Display

APPENDIX 5: ACRONYMS AND ABBREVIATIONS

Acronyms and Abbreviations	
ACH	Acute Care Hospital
ADT	Admission, Discharge and Transfer
AHEC	Area Health Education Centers
AHRQ	Agency for Healthcare Research and Quality
ALJ	Administrative Law Judge
ARRA	American Recovery and Reinvestment Act
BTOP	Broadband Technology Opportunities Program
CAP	College of American Pathologists
CBOC	Community Based Outpatient Clinic
CCD	Combined Chemical Dictionary
CCHA	Coastal Carolinas Health Alliance
CCHIT	Certification Commission for Health Information Technology
CCN	CMS Certified Number
CCNC	Community Care of North Carolina
CCR	Continuity of Care Record
CDC	Centers for Disease Control
CDSA	Child Development Service Agency
CHC	Community Health Center
CHF	Congestive Heart Failure

CHIP	Children's Health Insurance Program
CHIPRA	Children's Health Insurance Program Reauthorization Act
CIC	CCNC Informatics Center
CIH	Cherokee Indian Hospital
CIP	Capital Improvement Program
CIS	Credentialing Information System (CIS)
CMC-NC	Carolina Medicaid Center - NorthEast
CMIS	Case Management Information System
CPOE	Computerized Physician Order Entry
CPP	Community Practitioner Program
CRM	Customer Relationship Management
CRNA	Certified Registered Nurse Anesthetist
CSC	Computer Sciences Corporation
DCHI	Duke University Center for Health Informatics
Department	North Carolina Department of Health and Human Services
DHSR	Division of Health Service Regulation
DMA	Division of Medical Assistance
DMH/DD/SAS	Division of Mental Health/Developmental Disabilities/Substance Abuse Services
DPRP	Diabetes Physician Recognition Program
DRIVE	Data Retrieval and Information Validation Engine
DSOHF	Division of State Operated Healthcare Facilities

DURSA	Data Use and Reciprocal Support Agreement
ED	Emergency Department
EH	Eligible Hospital
EHR	Electronic Health Record
EMR	Electronic Medical Record
EMS	Emergency Medical Services
EMSPIC	EMS Performance Improvement Center
e-NC	e-North Carolina Authority
EP	Eligible Professional
EPSDT	Early and Periodic Screening, Diagnostic and Treatment
ERC	Education and Research Consortium of the Western Carolinas
FFS	Fee-For-Service
FIP	Facilities Investment Programs
FQHC	Federally Qualified Health Center
GUI	Graphical User Interface
HIE	Health Information Exchange
HIO	Health Information Organization
HIS	Health Information System
HIT	Health Information Technology
HIT Plan	NC Medicaid Health Information Technology Plan
HITECH	Health Information Technology for Economic and Clinical Health Act

HPES	Hewlett Packard Enterprise System
HSRP	Heart/Stroke Recognition Program
HWTFC	Health and Wellness Trust Fund Commission
IC	Informatics Center
ICARE	International Cancer Alliance for Research and Education
IDN	Integrated Delivery Networks
IDS	Increased Demand for Community Health Center Services
IHS	Indian Health Services
IT	Information Technology
ITS	Information Technology Services
LCSW	Licensed Clinical Social Worker
LME	Local Management Entities
LMFT	Licensed Marriage and Family Therapist
LV	Left Ventricular
MCNC	Microelectronics Center of North Carolina
MFCU	Medicaid Fraud Control Unit
MITA	Medicaid Information Technology Architecture
MMIS	Medicaid Management Information System
MPN	Medicaid Provider Number
MU	Meaningful Use
NC HIE	North Carolina Health Information Exchange

NC OEMS	The North Carolina Office of EMS
NC RACE	North Carolina Reperfusion in AMI in Carolina Emergency Departments
NCAC	North Carolina Administrative Code
NCB-Prepared	North Carolina Bio-Preparedness Collaborative
N3CN	North Carolina Community Care Networks
NCCHCA	North Carolina Community Health Center Association
NCHA	North Carolina Hospital Association
NCHESS	North Carolina Hospital Emergency Surveillance System
NCHEx	North Carolina Healthcare Exchange
NCHICA	North Carolina Healthcare Information and Communications Alliance
NCHQA	North Carolina Healthcare Quality Alliance
NCID	North Carolina Identifier
NCMS	North Carolina Medical Society
NCMSF	North Carolina Medical Society Foundation
NCQA	National Committee for Quality Assurance
NCREN	North Carolina Research and Education Network
NCRHC	North Carolina Rural Health Center
NCTN	North Carolina TeleHealth Network
NCTN-H	North Carolina TeleHealth Network - Hospitals
NCTRACKS	NC Transparent Reporting, Accounting, Collaboration, and Knowledge Management System

NEMSIS	National EMS Information System
NGA	Notice of Grant Award
NHIN	Nationwide Health Information Network
NLR	National Level Repository
NPI	National Provider Identifier
NTIA	National Telecommunications and Information Administration
O&P	Orthotic and Prosthetic
OGM	Office of Grants Management
OIG	Office of the Inspector General
OIT	Office of Information Technology Services
OMMISS	Office of Medicaid Management Information System Services
ONC	Office of the National Coordinator
OPC	Outpatient Clinic
OPMH	Outpatient Mental Health
PAC	Picture Archiving and Communication
PCC	Pitt Community College
PCG	Public Consulting Group
PCP	Primary Care Physician
PMO	Project Management Office
PMS	Practice Management System
PQRI	Physician Quality Reporting Initiative

PreMIS	Pre-Hospital Medical Information System
PSO	Patient Safety Organization
QIS	Quality Improvement Specialists
RAID	Redundant Array of Independent Disks
RCHD	Rowan County Health Department
REC	Regional Extension Center
RFP	Request for Proposal
RHC	Rural Health Center
RPMS	Resource Patient Management System
SAS	Statistical Analysis System
SCCN	Sandhills Community Care Network Health Information Exchange
SCHD	Stanly County Health Department
SCHIEx	South Carolina Health Information Exchange
SCHS	State Center for Health Statistics
SCIO	State Chief Information Officer
SHARP	Strategic Health IT Advanced Research Project
SL	Session Law
SMA	State Medicaid Agency
SMHP	State Medicaid HIT Plan
SNG	Strategic Networks Group
SOW	Statement of Work

SPCCP	Southern Piedmont Community Care Plan
SPPPH	Southern Piedmont Partnership for Public Health
SS-A	State Self-Assessment
STEMI	Segment Elevation Myocardial Infarction
TIN	Taxpayer Identification Number
UBT	University Based Training
UNC	University of North Carolina
VA	Veterans Administration
VistA	Veterans Administration Electronic Health Record
vSPR	Virtual Single Patient Record
WITS	Web Infrastructure for Treatment Services
WNC Data Link	Western North Carolina Data Link
WNCHN	Western North Carolina Health Network

APPENDIX 6: PREVIOUS VERSION CONTROL

Previous Version Control - Version 1.3

Date	Section updated	Page numbers	Nature of Change
November 2011	Entire document	All	Removed line numbers.
November 2011	A.7.1	52-53	Updated section on NC HIE to better reflect the existing structure of the organization.
November 2011	B.2	72-85	Updated section to better reflect the plans of NC HIE.
November 2011	C.4.4	106	Updated section on the payment mechanism to reflect actual method being used.
November 2011	C.5.3	108-114	Updated section on the hospital calculation to make it easier to understand.
November 2011	C.6	116-119	Updated section to reflect existing appeals process.

Previous Version Control

The following changes, clarification, and information was provided in response to the December 27, 2010 CMS Conditional approval, Enclosures A and B.

SMHP Ver. 1.0 Page#	CMS Comment	Revision Date	Description/Response/Clarification
49	Enclosure A, Item 1 Please provide a diagram of any management structure created per the SL 2009-0451 of the NC General Assembly	Jan., 2011	Clarification added in Jan., 2011, Ver. 1.1: Pg. 52, lines 1017-1020
49	Enclosure A, Item 2 Please provide answers to the following questions concerning the management structure: a. Does the coordination between state entities include leveraging assistance from other federal programs beyond ARRA? b. What state program would be considered to leverage ARRA funds? c. Please provide further details of how the management structure is compatible with ONC and with the DMA.		Clarification added in Jan., 2011, Ver. 1.1: Pg. 59 Lines 1269-1283 Clarification added in Feb., 2011, Ver. 1.2: Item 2.a. - Pg. 52 Lines 1007 - 1009 Item 2.b. – Pg. 52 Line 1007
50	Enclosure A, Item 3		Clarification added in Jan., 2011, Ver. 1.1:

SMHP Ver. 1.0 Page#	CMS Comment	Revision Date	Description/Response/Clarification
	Does the DMA have any plans to exchange information with the CCME to assist the RECs?		Page 60, lines 1309 – 1311
50-51	Enclosure A, Item 4 The role of the REC is clear, but the collaboration between the REC and the DMA is not as clear. How does the DMA plan to leverage the REC, and vice versa?		Clarification added in Jan., 2011, Ver. 1.1: Page 60, lines 1311 – 1314
57	Enclosure A, Item 5 Will the Informatics Provider Portal seek certification as a module? If not, isn't there a tension between encouraging providers' use of this tool while at the same time encouraging them to adopt and meaningfully use certified EHR technology? If yes, where is the funding coming from to support the changes necessary for certification and the actual certification fees/costs?		Clarification added in Jan., 2011, Ver. 1.1: It appears that CMS is referring to information previously shown on pages 67 and 68 instead of page 57 as indicated. Clarification added on: Page 78, lines 1951 – 1956
58-59	Enclosure A, Item 6 It was not apparently clear if the HIE models in the State are opt-in or opt-out. If opt-in, how will providers with non-participating beneficiaries maximize the HIEs for mandatory public health reporting? Page 58 notes a plan to seek a statewide opt-out approach but what happens in the interim?		Clarification added in Jan., 2011, Ver. 1.1: Page 68, lines 1584–1619 Clarification added in Feb., 2011, Ver. 1.2: Item 6 - Pg. 69 Lines 1603 - 1604

SMHP Ver. 1.0 Page#	CMS Comment	Revision Date	Description/Response/Clarification
60	Enclosure A, Item 7 How does the State plan to fund the required interfaces for its public health reporting systems in support of MU?		Clarification added in Jan., 2011, Ver. 1.1: Page 70, Lines 1693-1696
66	Enclosure A, Item 8 Please update the SMHP to reflect the State's intention to initiate payments between Jan-March 2011, instead of the April 1st date.		Clarification added in Jan., 2011, Ver. 1.1: Page 76, Line 1842 Page 25, Lines 93, 94 Page 57, Lines 1180, 1181 Page 92, Lines 2280, 2281

73, Section C.2.2.2	Enclosure A, Item 9 Will the link to ONC also include an explanation of how a provider will obtain a certification number for the incentive program?		Clarification added in Jan., 2011, Ver. 1.1: Page 83, Line 2099-2100
73, Section C.2.2.2	Enclosure A, Item 10 Will the web site provide alerts to changes in the law or regulation?		Clarification added in Jan., 2011, Ver. 1.1: Page 83, Line 2108
73	Enclosure A, Item 11 Will the DMA use any methods such as surveys to determine if providers are reading the publications and the impact of these bulletins on provider's adoption?		Clarification added in Jan., 2011, Ver. 1.1: Page 82, Lines 2072-2074
74, C.2.3	Enclosure A, Item 12 What if any additional funding and staffing will be needed for the help desk? To what extent can the DMA leverage existing help desk resources?		Clarification added in Jan., 2011, Ver. 1.1: Page 84, Lines 2165-2171

78	Enclosure A, Item 13 Please provide additional details on how the DMA can count "patients who entered the ER on the same day as being admitted and discharged as an inpatient." Is there a claims review process in place that would determine whether in fact the patient was admitted as "inpatient"? CMS suggests DMA review the CMS FAQ on ER visits and update this section accordingly.		Clarification added in Jan., 2011, Ver. 1.1: Page 89, Lines 2241-2248
85-86	Enclosure A, Item 14 How will the SMA verify providers are properly licensed/qualified providers? If North Carolina intends to utilize Provider Portal (NC Tracks) to interface with existing Medicaid provider enrollment records for EHR Incentive Program enrollment, have the existing vulnerabilities identified in the FY 2008 Medicaid Integrity Group's Comprehensive Medicaid Program Integrity Review been adequately addressed? Have the corrective actions from the review regarding disclosures related to criminal convictions, ownership, control, relationships, and managing employees gone into effect yet? What actions were taken? How will the State ensure that existing providers have not been sanctioned or excluded since the time of their original enrollment, prior to making EHR incentive payments?		Clarification added in Jan., 2011, Ver. 1.1: Page 97-98, Lines 2404-2417

87, C.4.5.1	Enclosure A, Item 15 The State does not need to verify the DMF status. The CMS NLR will cover this at the time of registration and pre-payment.		Clarification added in Jan., 2011, Ver. 1.1: Page 99, Lines 2467-2468
101-102, Table 18	Enclosure A, Item 16 How will providers submit documentation for review? (Can documentation be uploaded electronically to reduce the burden of the audit?)		Clarification added in Jan., 2011, Ver. 1.1: Page 114, Line 2813, Table 18
103-104	Enclosure A, Item 17 Has the State considered what might be audited pre-payment versus post-payment? Provide more information on pre-payment efforts to control fraud-in order to reduce the audit burden.		Clarification added in Jan., 2011, Ver. 1.1: Pre-payment on Page 117, Lines 2898-2904 Post-payment on Page 115, Lines 2830-2834 and Page 116, Lines 2838-2846
103, D.3	Enclosure A, Item 18 Providers must attest they have certified EHR technology, not a certified vendor. Compliance would also not be based on just having a contract, but also whether the provider has met NAA costs.		Clarification added in Jan., 2011, Ver. 1.1: Certified EHR technology on: Page 116, Line 2881 NAA costs on: Page 100-101, Lines 2528-2545
103	Enclosure A, Item 19 Please clarify what the provider must attest to in bullet three: A/I/U or MU?		Clarification added in Jan., 2011, Ver. 1.1: Page 117, Line 2884-2885

104	Enclosure A, Item 20 Does the DMA anticipate working with CMS on areas for audit, and exchanging ideas for information exchange between the two programs?		Clarification added in Jan., 2011, Ver. 1.1: Page 116, Lines 2857-2858
	Enclosure B, Item 1 General: Does the State plan to promote the benefits of EHRs to Medicaid consumers?		Clarification added in Jan., 2011, Ver. 1.1: Page 81, Lines 2007-2009
71	Enclosure B, Item 2 While the State may leverage this environmental scan for planning and outreach purposes, since the proxy values are based on several assumptions, including full-time status, CMS wants to remind the State that this calculation cannot be used to determine eligibility.		Clarification added in Jan., 2011, Ver. 1.1: Page 81, Lines 2022-2023